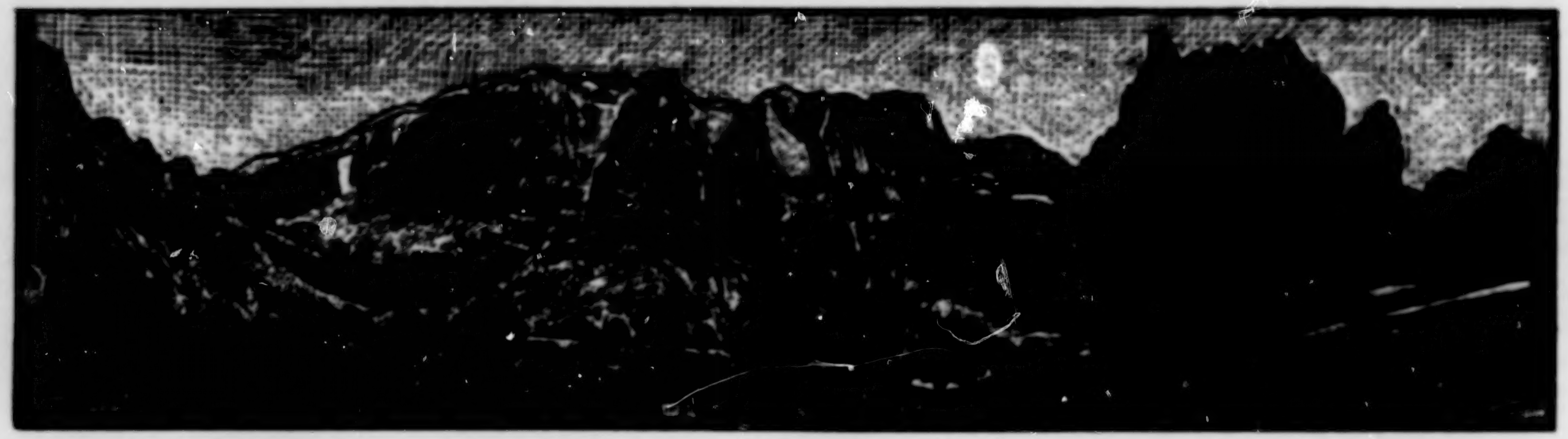
0624-E-10 I 53.59/2:6 76

Bureau of Land Management

Grand Staircase-Escalante National Monument



Proposed Management Plan
Final Environmental Impact Statement
July 1999

99-031617

720

COMPLETED

60:54

BLM/UT/PT-88/008+1610

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT

PROPOSED MANAGEMENT PLAN FINAL ENVIRONMENTAL IMPACT STATEMENT

Prepared by

Grand Staircase-Escalante National Monument
Cedar City, Utah

July 1999

Linda S. Colville

Linda S. Colville, Acting State Director, Utah

A J Meredith

A. J. Meredith, Monument Manager

United States Department of the Interior

Bureau of Land Management
Grand Staircase-Escalante National Monument
337 South Main, Suite 010
Cedar City, Utah 84720

1600
(UT-030)

Dear Reader:

Enclosed for your review is the Grand Staircase-Escalante National Monument Proposed Management Plan and Final Environmental Impact Statement (Proposed Plan). The Proposed Plan is a refinement of the Preferred Alternative and accompanying environmental analysis contained in the Draft Management Plan/Draft Environmental Impact Statement (Draft Plan) that was issued to the public in November 1998. Elements of each of the five alternatives analyzed in the Draft Plan were drawn upon to create this Proposed Plan. The Proposed Plan reflects consideration given to public comments, corrections, and rewording for clarification.

The Proposed Plan is published in a condensed format and can be used in conjunction with the Draft Plan to facilitate review. The description of the affected environment and detailed descriptions of alternatives contained in the Draft Plan, as well as some of the appendices, are referenced but not reproduced in the Proposed Plan.

Upon publication of this Plan, a 30-day protest period and a 60-day Governor's Consistency review will be held. The Record of Decision (ROD) and the Approved Management Plan will then be prepared. Approval will be withheld on any portion of the Proposed Plan under protest until final action has been completed on any protests. Distribution of the ROD/Approved Plan is expected to occur in the Fall of 1999.

We appreciate the time and effort you have given during your involvement in this process. Your continued participation is essential to achieve wise management of public lands and resources within the Monument.

Sincerely,

A. J. Meredith
Monument Manager

GRAND STAIRCASE-ESCALANTE NATIONAL MONUMENT
MANAGEMENT PLAN and ENVIRONMENTAL IMPACT STATEMENT

( ) Draft Environmental Statement (X) Final Environmental Statement

Department of the Interior, Bureau of Land Management

Type of Action: (X) Administrative ( ) Legislative

Abstract: This is the Proposed Management Plan and Final Environmental Impact Statement for Grand Staircase-Escalante National Monument.

This document responds to public comments received on the Draft Management Plan and Draft Environmental Impact Statement for Grand Staircase-Escalante National Monument. The Proposed Plan also corrects errors in the Draft Plan identified through the public comment process and internal BLM review. The Proposed Plan and associated analysis presents a refined and modified version of the Preferred Alternative and the accompanying impact analysis contained in the Draft Plan.

This document is published in a condensed form. To facilitate review, it can be used in conjunction with the Draft Plan, which was published in November 1998.

Protests to this Management Plan *must* be received within 30-days of the date of publication, in the *Federal Register*, of the Notice of Availability by the United States Environmental Protection Agency. A news release will also be provided to local newspapers.

For further information contact:

Ms. Chris Killingsworth, Planning Coordinator
Grand Staircase-Escalante National Monument
337 South Main Street, Suite 010
Cedar City, Utah 84720
(435) 865-5100

PROTEST PROCEDURES

The resource management planning process provides for an administrative review to the BLM Director for those who believe approval of the Proposed Management Plan and Final Environmental Impact Statement (Proposed Plan) for Grand Staircase-Escalante National Monument would be in error (See 43 CFR 1610.5-2). The following guidelines outline the process for preparation and submission of a protest that will assure the greatest consideration to your point of view.

Only those persons or organizations who participated in the scoping or comment period for the 1998 Draft Management Plan/Draft Environmental Impact Statement planning process leading to this Proposed Plan may protest. If our records do not indicate a person's involvement in any stage in the preparation of the Proposed Plan, the protest will be dismissed without further review.

A protesting party may raise only those issues which he/she submitted for the record during the planning process. New issues raised in the protest period should be directed to the Monument Manager for consideration in plan implementation, as a potential plan amendment, or as otherwise appropriate.

The period for filing a plan protest begins with the Environmental Protection Agency publication of the Notice of Availability of the Proposed Plan/Final Environmental Impact Statement in the Federal Register. The protest period extends for 30 days. There is no provision for an extension of time. **To be considered timely, a protest must be postmarked no later than the last day of the protest period.**

Although not a requirement, we suggest that protests be sent by certified mail, return receipt requested.

Protests must be in writing to:

Director, Bureau of Land Management
Attn: Ms. Brenda Williams, Protests Coordinator
1849 C Street NW
WO-210/LS-1075
Department of the Interior
Washington, DC 20240

Overnight mail address is:

Director, Bureau of Land Management
Attn: Ms. Brenda Williams, Protests Coordinator (WO-210)
1620 L Street, NW, Suite 1075
Department of the Interior
Washington, DC 20036
Phone: 202/452-5045

To expedite consideration, **in addition to the original sent by mail or overnight mail**, a copy of the protest may be sent by:

FAX to 202/452-5112; or E-mail to bhudgens@wo.blm.gov

BEST COPY AVAILABLE

4

USER'S GUIDE

The Grand Staircase-Escalante National Monument Proposed Management Plan and Final Environmental Impact Statement (FEIS) is divided into five chapters, and includes maps, appendices, a glossary, references, an index, and an errata. This document is published in a condensed format and can be used in conjunction with the Draft Management Plan/Draft Environmental Impact Statement (DEIS) distributed in November 1998.

Chapter 1 (Purpose and Need) contains introductory material for the Proposed Management Plan/FEIS. It describes the purpose and need for the preparation of the document and identifies the issues that will be addressed. It also describes the planning and scoping process and outlines the planning criteria. This chapter also outlines changes that have occurred since the publication of the Draft Plan. A table comparing the Proposed Plan actions with the five draft alternatives can be found at the end of this chapter.

Chapter 2 (Proposed Management Plan) outlines the general management direction for the Monument including resource objectives and actions to accomplish those objectives. This chapter is organized as follows: Introduction, Resource and Management Objectives, Specific Resource Objectives and Actions, Zone Management Direction, Management Across Zones, Special Emphasis Areas, and Cooperation and Consultation. Maps and tables are found throughout the chapter.

Chapter 3 (Environmental Consequences) analyzes the potential impacts of implementation of the Proposed Plan. The analysis covers the direct, indirect, and cumulative effects of the proposed actions on Monument resources. This chapter also identifies and discusses issues considered but not analyzed in detail.

Chapter 4 (Public Participation and Coordination) includes a summary of public involvement, a collaborative management strategy, a list of agencies and organizations receiving the document, and the list of preparers for this Proposed Management Plan/FEIS. This chapter also addresses the consistency of the Proposed Plan with other approved plans.

Chapter 5 (Public Comments on the Draft Management Plan/DEIS and Responses) addresses the public comments received on the Draft and includes responses to those comments.

The **Appendices** contain additional information to help in the understanding of the document.

The **Glossary, References, and the Index** provide an aid to the reader in finding and understanding the material contained in this document.

An **Errata** to the Draft Management Plan/Draft Environmental Impact Statement is provided at the end of this document.

BEST COPY AVAILABLE

Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
ADC	Animal Damage Control
AMP	Allotment Management Plans
APHIS	Animal and Plant Health Inspection Service
APD	Application for Permit to Drill
ATV	All-Terrain Vehicle
AUM	Animal Unit Month
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
DMP	Draft Management Plan
DOGM	Utah Division of Oil, Gas, and Mining
FACA	Federal Advisory Committee Act
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act
GCNRA	Glen Canyon National Recreation Area
GIS	Geographic Information System
GOPB	Utah Governors Office of Planning and Budget
GSENM	Grand Staircase-Escalante National Monument
IM	Instruction Memorandum
IMP	Interim Management Policy and Guidelines for Lands Under Wilderness Review
ISA	Instant Study Area
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NWSRS	National Wild and Scenic River System
OHV	Off-Highway Vehicle
ONA	Outstanding Natural Area
PFC	Proper Functioning Condition
PSD	Prevention of Significant Deterioration
PWR	Public Water Reserves
RMIS	Recreation Management Information System
RNA	Research Natural Area
ROD	Record of Decision
ROW	Rights-of-Way
SITLA	Utah School Institutional and Trust Lands Administration
SRMA	Special Recreation Management Area
TDS	Total Dissolved Solids
TGA	Taylor Grazing Act
TMDL	Total Maximum Daily Load
UDEQ	Utah Department of Environmental Quality
UDWQ	Utah Division of Water Quality
UDWR	Utah Division of Wildlife Resources
UGS	Utah Geological Survey
USFWS	United States Fish and Wildlife Service
USC	United States Code
USDOI	United States Department of the Interior
USGS	United States Geological Survey
VER	Valid Existing Right
VRM	Visual Resource Management
WPPA	Wolverine Petrified Forest Area
WSA	Wilderness Study Area
WSR	Wild and Scenic Rivers

Protest Procedures vii
User's Guide ix
Acronyms and Abberviations x

CHAPTER 1 - PURPOSE AND NEED

Introduction 1.1
    Setting 1.1
    Purpose and Need for Action 1.1
The Proposed Plan 1.2
Planning Process 1.2
    Scoping Process 1.3
    Issues 1.3
    Development of Management Strategies and Alternatives 1.4
    Draft and Proposed Management Plans 1.11
    Implementation and Plan Maintenance 1.11
Summary of Planning Criteria and Considerations 1.11
    Proclamation 1.11
    Federal Land Policy and Management and National Environmental Policy Acts 1.12
    Planning Criteria 1.12
Significant Events and Changes Since Publication of the Draft Plan 1.14
    Changes in Management Situation 1.14
    Changes Between the Draft and Proposed Plan 1.14
What's Next in the Planning Process 1.15

Figure 1.1 - Overview of the Planning Process 1.3
Table 1.1 - Alternative Comparison 1.16

Map 1.1 - Land Status 1.5
Map 1.2 - Lands Acquired in State Institutional and Trust Land Administration Exchange 1.7
Map 1.3 - Boundary Adjustment 1.9

CHAPTER 2 - PROPOSED MANAGEMENT PLAN

Introduction 2.1
    General Direction 2.1
    Monument Management Direction 2.1

Table of Contents

- Overall Resources and Management Objectives 2.2
- Specific Resource Objectives and Actions 2.3
  - Geology 2.3
  - Paleontology 2.3
  - Archaeology 2.4
  - History 2.5
  - Soils and Biological Soil Crusts 2.6
  - Vegetation 2.6
  - Fish and Wildlife 2.7
  - Water 2.9
    - Water's Role in The Protection of Monument Resources 2.9
    - Strategy For Assuring Water Availability 2.10
    - Appropriative Water Rights Under State Law 2.12
    - Federal Reserved Water Rights 2.12
    - Assuring Water Quality 2.13
  - Air Quality 2.13
- Zone Management Direction 2.14
  - Zone Descriptions 2.14
  - Camping 2.15
  - Climbing 2.16
  - Commercial Filming 2.16
  - Competitive and Special Events 2.16
  - Facilities 2.16
    - Visitor Facilities in the Gateway Communities 2.16
    - Visitor Facilities in the Monument 2.17
  - Group Size 2.18
  - Outfitter and Guide Operations 2.19
  - Recreation Allocations 2.19
  - Recreational Stock Use 2.20
  - Transportation and Access 2.20
    - Public Access 2.20
    - Maintenance 2.21
    - Trails 2.21
    - Administrative Routes and Authorized Users 2.22
    - Road Restoration Strategy 2.22
    - Enforcement 2.22
    - Aircraft Operations 2.23

- Utility Rights-of-way and Communication Sites 2.23
  - Rights-of-Way 2.24
- Vending 2.24

Management Across Zones 2.25

- Collections 2.25
- Emergency and Management Exceptions 2.25
- Fees 2.25
- Fences 2.25
- Implementation and Adaptive Management Framework 2.25
- Livestock Grazing 2.26
  - Applicable Statutes and Regulations 2.26
  - Grazing Management Process 2.27
  - Mandatory Content For AMPs 2.28
  - Optional Content for AMPs 2.29
  - Schedule 2.29
- Night Skies 2.29
- Riparian 2.29
- Science and Research 2.30
  - Focus of Science and Research 2.30
  - Education and Outreach 2.31
  - Management of Science and Research Activities 2.31
- Special Status Animal Species 2.31
  - Endangered Fish 2.33
  - Bald Eagle 2.33
  - Peregrine Falcon 2.34
  - Mexican Spotted Owl 2.34
  - Southwestern Willow Flycatcher 2.35
  - California Condor 2.35
  - Kanab Ambersnail 2.35
- Special Status Plant Species 2.36
  - Jones' Cycladenia 2.37
  - Kodachrome Bladderpod 2.37
  - Ute Ladies'-tresses 2.38
- Valid Existing Rights and Other Existing Authorizations 2.38
  - Energy and Mineral Activities (Including Hardrock, Oil, Gas, and Coal) 2.39
  - Other Existing Rights or Interests 2.40
  - School and Institutional Trust Lands Administration Lands Acquired 2.42

- Vegetation Management 2.44
    - Relict Plant Communities and Hanging Gardens 2.44
    - Vegetation Restoration Methods 2.44
    - Noxious Weed Control 2.45
    - Forestry Products 2.46
    - Native Vs. Non-native Plants 2.46
    - Reseeding after Fires 2.49
    - Restoration and Revegetation 2.49
- Water-related Developments (Non-culinary) 2.50
- Wildfire Management 2.50
- Wildlife Services 2.51
- Withdrawal Review 2.51

Special Emphasis Areas 2.52
- Areas of Critical Environmental Concern 2.52
- Special Management Designations 2.52
- Special Recreation Management Areas 2.52
    - Escalante Canyons SRMA 2.55
    - Paria/Hackberry SRMA 2.55
    - Paria Canyons and Plateaus SRMA 2.55
    - Fiftymile Mountain SRMA 2.56
    - Highway 12 Corridor SRMA 2.56
    - Highway 89 Corridor SRMA 2.56
- Visual Resource Management 2.56
- Wild and Scenic Rivers 2.61
- Wilderness Study Areas 2.61
- The 1999 Utah Wilderness Inventory and Section 202 Planning Process 2.71

Cooperation and Consultation 2.72
- Consultation with Native American Indians 2.72
- Cooperation with Communities and Other State and Federal Agencies 2.72
- Gsenm Advisory Committee 2.72

End Notes 2.73

Table 2.1 - Summary of GSENM Mineral Leases 2.40
Table 2.2 - Summary of Authorizations Acquired from SITLA 2.43
Table 2.3 - Withdrawals/Classifications 2.52
Table 2.4 - Wilderness Study Areas 2.71

BEST COPY AVAILABLE

10

Map 2.1 - Management Zones and Transportation System .... pocket in back of document
Map 2.2 - Forestry Product Areas 2.47
Map 2.3 - Special Management Designations 2.53
Map 2.4 - Special Recreation Management Areas 2.57
Map 2.5 - Visual Resource Inventory Classes 2.59
Map 2.6 - Wild and Scenic Rivers Suitable Segments - Escalante Drainage 2.63
Map 2.7 - Wild and Scenic Rivers Suitable Segments - Paria Drainage 2.65
Map 2.8 - Wilderness Study Areas 2.67
Map 2.9 - Management Zones and Wilderness Study Areas 2.69

CHAPTER 3 - ENVIRONMENTAL CONSEQUENCES

Introduction 3.1
- Types of Impacts 3.1
- Analysis Assumptions And Guidelines 3.2
- Incomplete or Unavailable Information 3.2
- Mitigation 3.3
- Reasonably Foreseeable Actions 3.3

Proposed Plan Impact Analysis 3.4
- Impacts on Paleontological Resources 3.5
- Impacts on Archaeological And Historic Resources 3.10
- Impacts on Biological Soil Crusts 3.17
- Impacts on Vegetation 3.23
- Impacts on Special Status Plant Species 3.30
- Impacts on Relict Plant Communities And Hanging Gardens 3.36
- Impacts on Riparian Resources 3.40
- Impacts on Wildlife 3.48
- Impacts on Special Status Animal Species 3.56
- Impacts on Water Quality 3.64
- Impacts on Air Quality 3.70
- Impacts on Scenic Quality 3.73
- Impacts on Wild And Scenic River Values 3.78
- Impacts on Wilderness Values 3.80
- Impacts on Research Activities 3.84
- Impacts on Recreational Use 3.87
- Impacts on Outfitters And Guides 3.91
- Impacts on Livestock Operations 3.93

11

Impacts on Forestry Product Use 3.96
Impacts on Local Economies 3.98
Impacts on Adjacent Agencies Management 3.101
Cumulative Impacts 3.105
Irreversible And Irretrievable Commitment of Resources 3.107
Issues Considered But Not Analyzed in Detail 3.108
Impacts on Areas of Critical Environmental Concern 3.108
Impacts on Prime And Unique Farmlands 3.108
Impacts on Floodplains 3.108
Impacts on Geological Resources 3.108
Impacts on or From Hazardous And Solid Wastes 3.108
Impacts on Native American Trust Rights 3.108
Impacts on Environmental Justice 3.108
Impacts of Valid Existing Rights on Monument Resources and Management 3.109

Table 3.1 - Reasonably Foreseeable Actions (RFAs) 3.4

CHAPTER 4 - PUBLIC PARTICIPATION AND COORDINATION

Introduction 4.1
Visions Kit 4.1
Scoping Workshops 4.1
Science Symposium 4.1
Management Strategies And Scenarios 4.1
Draft Plan Comments 4.1
Draft Plan Open House Sessions 4.2
Open House Session Locations, Dates, and Attendance 4.2
Update Letters 4.2
Internet Homepage 4.2
Information Meetings 4.2
Intergovernmental Coordination 4.2
Federal Register Notices 4.3
Planning Consistency 4.3
Collaborative Management 4.12
EIS Distribution List 4.13
List of Preparers 4.15

Table 4.1 - Plan Consistency Review 4.5

CHAPTER 5 - PUBLIC COMMENTS ON THE DMP/DEIS AND RESPONSES

Public Comments 5.1
    Organizations Who Commented 5.1
    Individuals Who Commented 5.4
Comments and Responses on the Draft Management Plan 5.51
    Access and Transportation 5.51
    Biological Resources 5.61
    General 5.66
    Grazing 5.83
    Lands 5.85
    Recreation 5.88
    Water Resources 5.91
    Wilderness Study Areas 5.94
    Wild and Scenic Rivers 5.95

APPENDICES

Appendix 1- Presidential Proclamation A1.1
Appendix 2 - Antiquities Act of 1906 .... A2.1
Appendix 3 - Implementation and Adaptive Management Framework A3.1
Appendix 4 - Standard Procedures for Surface Disturbing Projects or Proposals A4.1
Appendix 5 - Standards and Guidelines for Healthy Rangelands A5.1
Appendix 6 - Grazing Allotments A6.1
Appendix 7 - Fish and Wildlife Service Consultation A7.1
Appendix 8 - Utah Sensitive Wildlife Species A8.1
Appendix 9 - Special Status Plant Species A9.1
Appendix 10 - Areas of Critical Environmental Concern A10.1
Appendix 11 - Wild and Scenic River Suitability A11.1
Appendix 12 - Economic Conditions A12.1

Glossary G.1
References R.1
Index I.1
Errata E.1

13

Chapter 1

Purpose and Need

BEST COPY AVAILABLE

INTRODUCTION

Grand Staircase-Escalante National Monument was established on September 18, 1996 when President Clinton issued a Proclamation (Appendix 1) under the provisions of the Antiquities Act of 1906 (Appendix 2). Pursuant to the Proclamation, this Proposed Management Plan and Final Environmental Impact Statement (PMP/FEIS) (hereinafter referred to as the Plan or Proposed Plan) sets forth the general vision and objectives for management of public lands and associated resources within Grand Staircase-Escalante National Monument.

SETTING

The Monument covers about 1,870,800 acres of Federal land in south-central Utah (Map 1.1). There are approximately 15,000 acres of land within the Monument boundary that are privately owned. Approximately 68 percent of the Monument is in Kane County, while the remaining 32 percent is in Garfield County. About 49 percent of Kane County and 18 percent of Garfield County lie within the Monument boundary. The Monument is primarily surrounded by Federal lands. Dixie National Forest borders the Monument to the north, Capitol Reef National Park on the east, Glen Canyon National Recreation Area on the east and southeast, Bryce Canyon National Park on the northwest, and other Bureau of Land Management (BLM) administered lands on the south and west. Kodachrome Basin State Park also adjoins the Monument.

Since designation of the Monument and the publication of the Draft Management Plan/Draft Environmental Impact Statement (DMP/DEIS), there have been two Federal laws passed which have affected its size. In May 1998, Secretary of the Interior Babbitt and Utah Governor Leavitt negotiated a land exchange to transfer all State school trust lands within the Monument to the Federal government, as well as the trust lands in the National Forests, National Parks and Indian Reservations in Utah. On October 31, 1998 President Clinton signed the Utah Schools and Lands Exchange Act (Public Law 105-335) which legislated this exchange. The Utah Schools and Land Exchange Act resulted in the addition of 176,699 acres of State school trust lands and 24,000 acres of mineral interest to the Monument (Map 1.2). On October 31, 1998, President Clinton also signed Public Law 105-355. Section 201 of this law adjusted the boundary of the Monument by including certain lands (a one-mile wide strip north of Church Wells and Big Water) and excluding certain other lands around the communities of Henrieville, Cannonville, Tropic, and Boulder. This law resulted in the addition of approximately 5,500 acres to the Monument (Map 1.3).

PURPOSE AND NEED FOR ACTION

The Monument was created to protect a spectacular array of historic, biological, geological, paleontological, and archaeological objects. These treasures, individually and collectively, in the context of the natural environment that supports and protects them, are the "Monument resources" discussed throughout this document.

The Proclamation, which is the principal direction for management of the Monument, clearly dictates that the BLM manage the Monument for "the purpose of protecting the objects identified." All other considerations are secondary to that edict.

The Proclamation governs how the provisions of the Federal Land Policy and Management Act (FLPMA) will be applied within the Monument. FLPMA directs the BLM to manage public land on the basis of multiple use and "in a manner that will protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resources, and archaeological values." The term "multiple use" refers to the "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment." Multiple use involves managing an area for various benefits, recognizing that the establishment of land use priorities and exclusive uses in certain areas is necessary to ensure that multiple uses can occur harmoniously across a landscape.

The Proclamation, FLPMA, the National Environmental Policy Act (NEPA), and other mandates provide the direction for the preparation of a management plan for the Monument. Within this guidance, many decisions remain about how best to protect

Monument resources and address the major issues surrounding Monument management. The Presidential Proclamation directed the Secretary of the Interior to prepare a plan in order to begin making those decisions. This Proposed Plan would guide management activities within the Monument and provide for the protection of Monument resources. It proposes to do so in a manner that creates opportunities for public discovery and education, sets a precedence for progressive public land stewardship, incorporates input from the scientific community and the public at large, and reflects the National significance of these resources.

THE PROPOSED PLAN

The purpose of this Plan is to provide both a set of decisions outlining management direction and to create a framework for future planning and decision-making. Its scope is necessarily broad, since it is a general framework document that will guide the overall management of activities within the Monument, as well as the use and protection of Monument resources. As in the case of any resource management plan, subsequent site specific and more detailed planning will take place for certain geographic areas and resources within the Monument in conformance with this Management Plan. For example, this could include the management of outfitter and guide services in a given area or more specific integrated resource planning in defined geographic areas. The most significant areas in which this Plan offers decisions include:

- transportation and access
- major and minor visitor facilities
- cross-country vehicle travel
- recreation
- collection of objects
- water quality
- water developments
- vegetation
- scientific research activities
- Wild and Scenic River recommendations

There are several areas for which major decisions have been deferred. For example, because Monument designation does not affect existing permits or leases for, or levels of, livestock grazing, grazing will ultimately be addressed after the completion of assessments for each grazing allotment and the preparation of new allotment management plans. Similarly, due to litigation and the timetable mandated by the Proclamation, this Plan does not offer recommendations for new Wilderness Study Areas or recommendations for legislative action regarding existing Wilderness Study Areas,. Currently, the Utah BLM is undertaking a separate statewide planning process that will determine whether there will be any new WSAs in the Monument. This process is scheduled to be completed in the fall of 2000. This Plan also does not make specific decisions concerning valid existing rights that may be asserted in the future under various authorities. Instead, as outlined in Chapter 2, the BLM will periodically verify the status of valid existing rights. When any action is proposed concerning these assertions, the BLM will analyze all potential impacts in order to provide a basis for decision making.

This Proposed Plan is presented in a condensed format and can be used in conjunction with the DMP/DEIS (published November 1998) to facilitate review. The description of the affected environment and detailed descriptions of alternatives contained in the DMP/DEIS, as well as some of the appendices, are referenced but not reproduced in the Proposed Plan. The description of the affected environment presented in the DMP/DEIS still represents the baseline from which this Plan was developed. In addition, portions of the environmental consequences analysis presented in the DMP/DEIS have been supplemented based on public comment and new information, and can be found in Chapter 5 of this Plan (see Comment/Response ACC-14). Acreages reported throughout this Plan were generated using a Geographic Information System (GIS) and may differ slightly from legal acreages.

PLANNING PROCESS

Figure 1.1 illustrates the steps in the planning process that have led to the publication of this Plan. Each of these steps is described in subsequent sections.

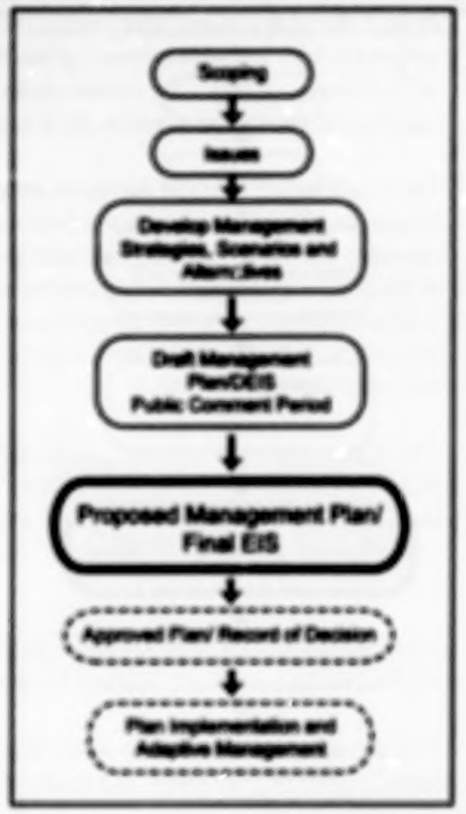

Scoping
Issues
Develop Management Strategies, Scenarios and Alternatives
Draft Management Plan/DEIS
Public Comment Period
Proposed Management Plan/ Final EIS
Approved Plan/ Record of Decision
Plan Implementation and Adaptive Management

Figure 1.1 Overview of the Planning Process

SCOPING PROCESS

The first step in the planning process was to invite public participation. This "scoping" process provided for a wide range of public input on the significant issues to be addressed in the Plan. The formal scoping period began with publication of the Notice of Intent to prepare a Management Plan, which appeared in the Federal Register on July 8, 1997 (Volume 62, No. 130, Pg. 36570).

The scoping process invited public input through a Visions Kit (a questionnaire), electronic mail, the Internet, and public workshops. Fifteen public workshops were held in seven states and Washington, D.C. between August 12 and October 16, 1997. Several thousand scoping comments were received, with comments coming from all 50 states and Washington, D.C.

ISSUES

One of the most important outcomes of the scoping process was the identification of the significant issues to be addressed in the Plan. For planning purposes, an "issue" is defined as a matter of controversy, dispute, or general concern over resource management activities, the environment, or land uses. In essence, issues help determine what decisions should be made in the Plan and what the environmental analysis must address (through an Environmental Impact Statement (EIS), as required by NEPA).

Based on the scoping comments and subsequent analysis and evaluation, seven integrated planning issues were identified and are listed below. In addition to the seven issues identified in scoping, the Plan addresses basic environmental and management issues including air quality, water quality, and soils management.

The planning issues identified in scoping were:

Issue 1: How will Monument resources be protected?

The Presidential Proclamation establishing the Monument identified an array of scientific and historic objects to be protected. These geological, paleontological, archaeological, biological, and historic objects, individually and collectively, in the context of the natural environment that supports and protects them, are considered Monument resources.

The Proposed Plan identifies various ways of protecting such resources, including educating visitors, restricting access, setting research priorities, and restoring degraded ecological conditions. Chapter 2 outlines the management objectives for Monument resources and the decisions that protect these resources.

Issue 2: How will research associated with the Monument be managed?

Science and history are at the very heart of the Proclamation which established the Monument. Grand Staircase-Escalante National Monument provides an opportunity to explore ecosystems, and to conduct social, natural, cultural, and physical science studies.

Chapter 2 of this Plan outlines how the scientific agenda for the Monument would be determined, how research would contribute to the protection of resources, how access for researchers would be managed, and how research would interact with recreation.

Issue 3: How will Monument management be integrated with community plans?

Both local and Native American Indian communities near the Monument have contemporary and historic ties to lands within the Monument. These communities make a valuable contribution to our National heritage and to the quality of visitor experiences.

This Plan discusses the need for continued cooperation between the Monument and these communities. Decisions under the **Cooperation and Consultation** section in Chapter 2 highlight collaborative endeavors with Native American Indians, local communities, Counties, the State, and other Federal agencies.

Issue 4: How will people's activities and uses be managed?

The activities of visitors and other users are recognized as having a profound effect on the Monument environment as well as on local communities surrounding the Monument. Management of those activities is crucial in protecting Monument resources.

Decisions such as: where and what kind of interpretation and visitor services to provide, how to manage uses such as rights-of-way, utility lines, outfitter and guide services, communication sites, and fuelwood cutting are all important elements of this Plan and can be found in Chapter 2. This Plan also addresses the treatment of valid existing rights in existence when the Monument was established.

Issue 5: What facilities are needed and where?

Facilities for the Monument include all structures for visitors, administration, and research.

This Plan identifies visitor facilities in gateway communities and identifies the zones where minor visitor facilities such as pullouts, parking areas, and trailheads could be located.

Issue 6: How will transportation and access be managed?

A network of routes and trails currently provides access to many areas of the Monument.

Proposed decisions in the **Transportation and Access** section of Chapter 2 identify the transportation network, maintenance activities, administrative routes and authorized users, a restoration strategy, trails, and an enforcement strategy.

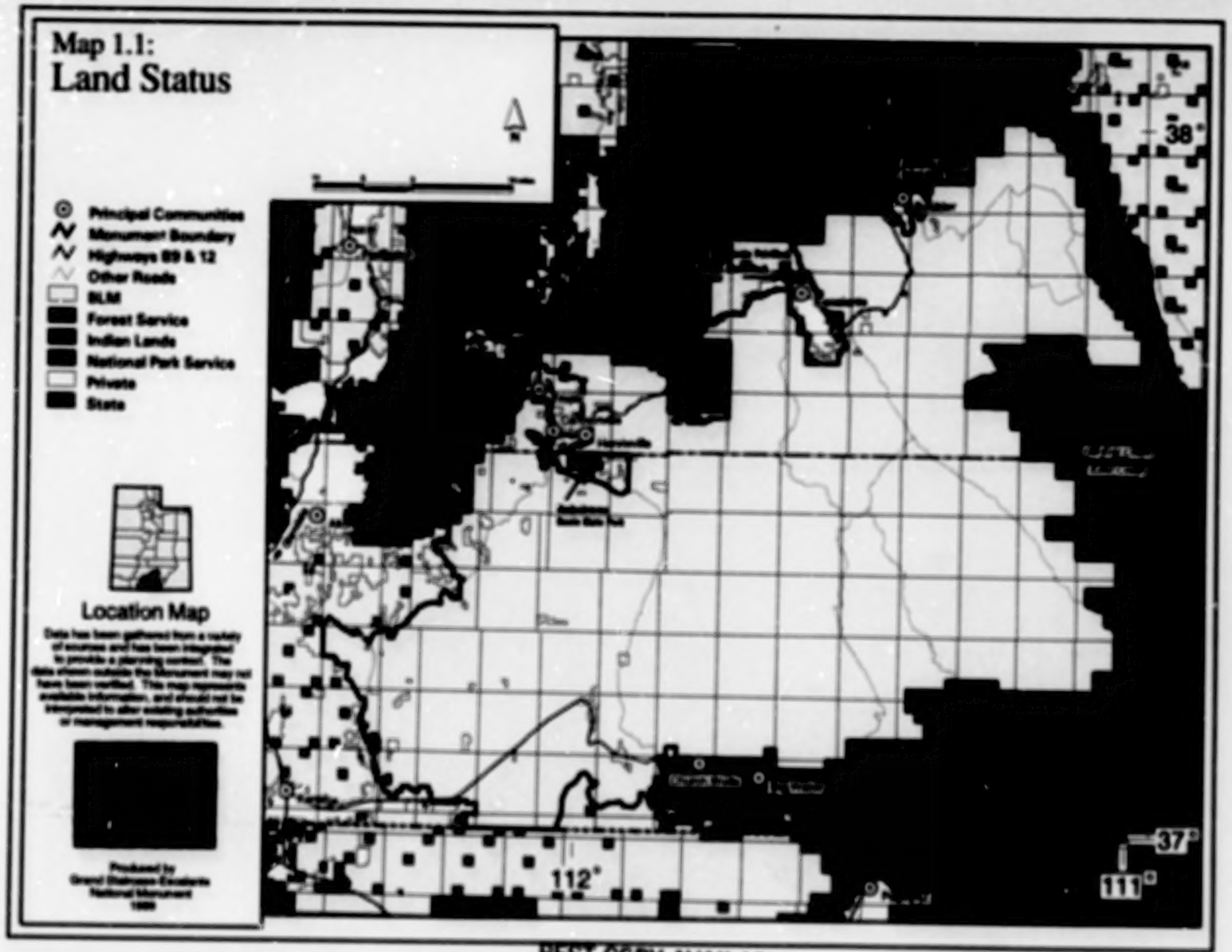
Issue 7: To what extent is water necessary for the proper care and management of the objects of the Monument, and what further action is necessary to assure the availability of water?

The Proclamation directed the Secretary of the Interior to address "the extent to which water is necessary for the proper care and management of the objects of this monument and the extent to which further action may be necessary, pursuant to Federal or State law, to assure the availability of water."

The Water section in Chapter 2 outlines the BLM's objectives with respect to water resources within the Monument. The section also addresses strategies for assuring water availability and water quality.

DEVELOPMENT OF MANAGEMENT STRATEGIES AND ALTERNATIVES

Defining the planning issues was the first step toward narrowing the scope of possible actions that would be carried forward into the planning process. Management strategies aimed at providing viable options for addressing the planning issues were then developed. The management strategies provided the building blocks from which the general management scenarios, and eventually, the more detailed management alternatives, were developed. The result of this process was the range of management alternatives provided in the DMP/DEIS.

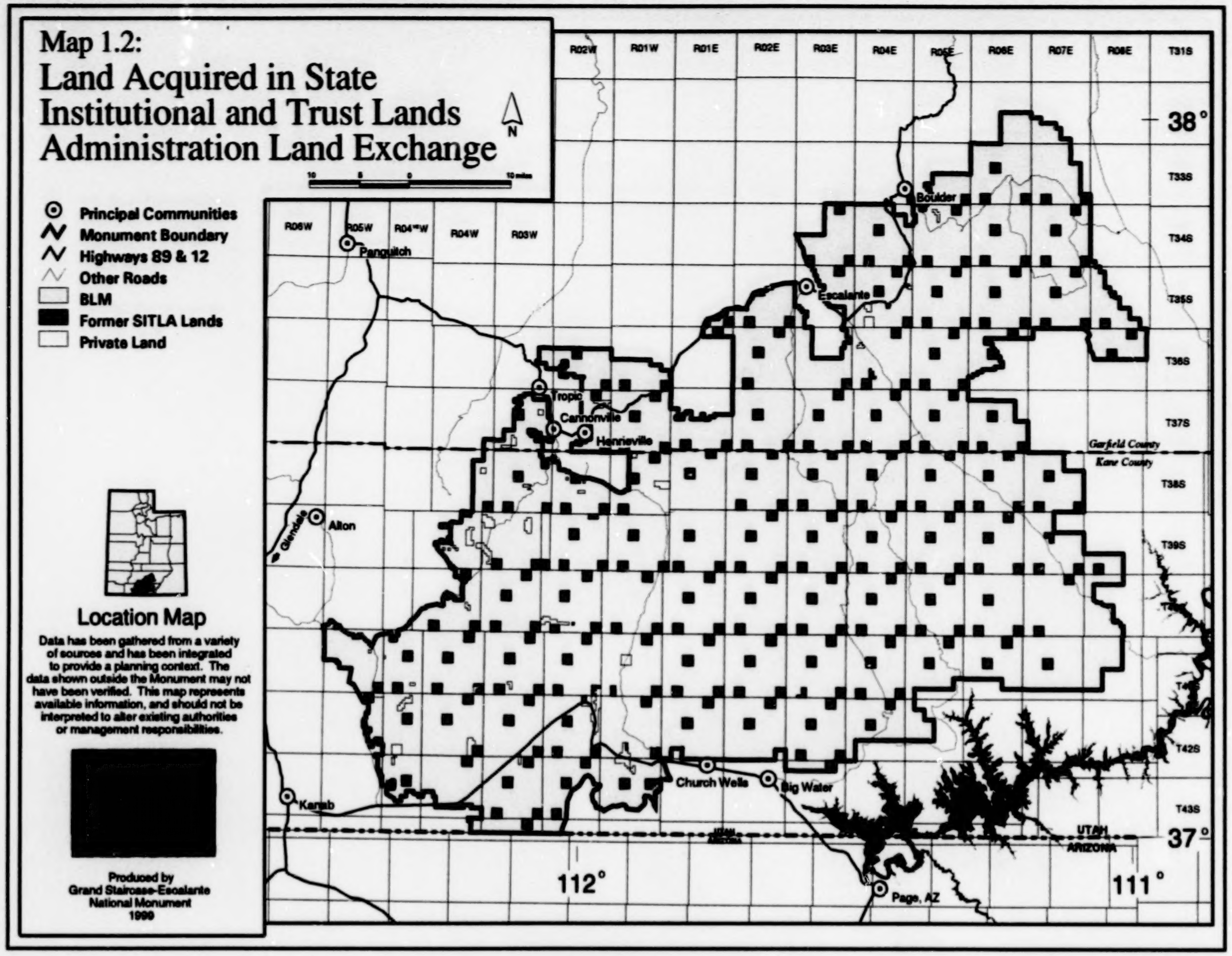


Map 1.1:
Land Status

Principal Communities
Monument Boundary
Highways 89 & 12
Other Roads
BLM
Forest Service
Indian Lands
National Park Service
Private
State
Location Map
Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.
Produced by
Grand Staircase-Escalante
National Monument
1999
38°
37°
112°
111°

Map 1.2:

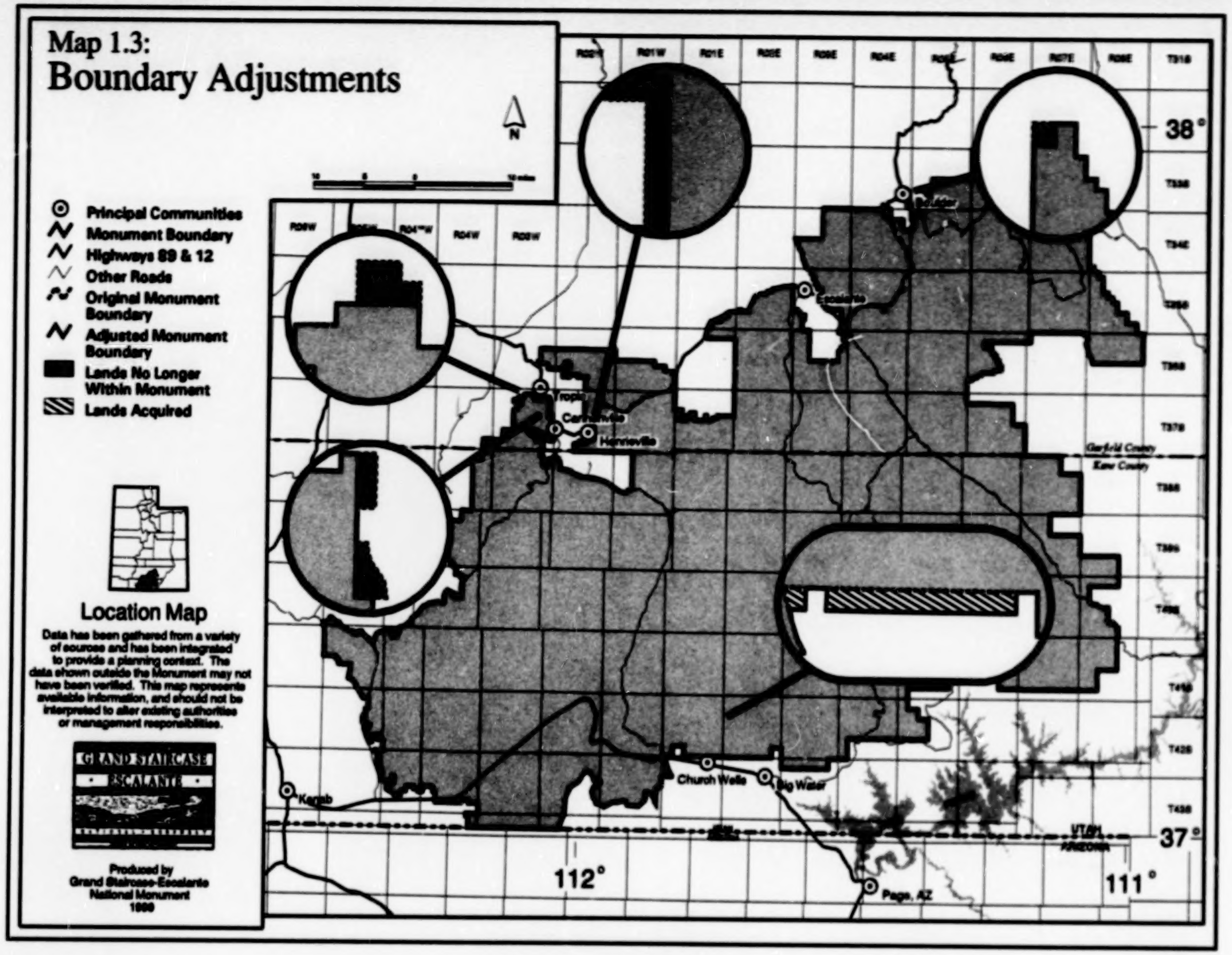
Land Acquired in State Institutional and Trust Lands Administration Land Exchange



Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Produced by
Grand Staircase-Escalante
National Monument
1999

BEST COPY AVAILABLE



Map 1.3:
Boundary Adjustments

Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Produced by
Grand Staircase-Escalante
National Monument
1999

BEST COPY AVAILABLE

21

DRAFT AND PROPOSED MANAGEMENT PLANS

Five alternatives for the management of the Monument, including a "No Action" Alternative, are described in the Draft Management Plan and Draft Environmental Impact Statement published in November 1998.

Alternatives B, C, D, and E describe various ways the provisions of the Proclamation would be applied to direct management of the Monument. Each alternative has a somewhat different emphasis, primarily defined in terms of resource focus, but all afford the high degree of protection for Monument resources required by the Proclamation. As a result, the range of alternatives presented in the DEIS is narrower than in standard BLM environmental impact statements. The DEIS represent a full range of the alternatives possible within the parameters of the Proclamation.

Alternative A, the No Action Alternative, describes the continuation of the interim management of the Monument, in which the provisions of the Proclamation and the Interim Guidance issued by the Director of the BLM are applied. This alternative does not refer to the management that was in place prior to Monument designation, but instead assumes the continuation of the interim management, initiated subsequent to designation and prior to the preparation of the Proposed Plan.

A 120-day public comment period followed the publication of the Draft Plan, and open house meetings were held throughout the West and in Washington D.C. between December 1, 1998 and January 12, 1999. Over 6,800 comment letters were received on the Draft Management Plan (see Chapter 5 for a detailed discussion of public input).

This document describes the Proposed Plan for the Monument. It is drawn from the alternatives laid out in the Draft Plan, applicable public comment, and management direction. A comparative summary of the planning alternatives addressed in the Draft Management Plan and the Proposed Plan presented in this document is provided in Table 1.1 at the end of this chapter.

IMPLEMENTATION AND PLAN MAINTENANCE

During the life of the Approved Plan, the BLM expects that new information gathered from field inventories and assessments, research, other agency studies, and other sources will update baseline data or support new management techniques and scientific principles. To the extent that such new information or actions address issues covered in the Plan, the BLM would integrate the data through a process called plan maintenance or updating. This process includes the use of an adaptive management strategy. As part of this process, the BLM would review management actions and the Plan periodically to determine whether the objectives set forth in this and other applicable planning documents are being met. Where they are not being met, the BLM would consider adjustments of appropriate scope. Where the BLM considers taking or approving actions which would alter or not conform to overall direction of the Plan, the BLM would prepare a plan amendment and environmental analysis of appropriate scope in making its determinations and in seeking public comment. A more detailed discussion of implementation and the use of adaptive management is included in Appendix 3.

SUMMARY OF PLANNING CRITERIA AND CONSIDERATIONS

Legal requirements and directives governing the planning process were considered in developing the framework for the Draft and Proposed Management Plans. The following is a summary of key planning considerations.

PROCLAMATION

The Presidential Proclamation (Proclamation 6920, September 18, 1996): The Proclamation (Appendix 1), enacted under the Antiquities Act of 1906 (Appendix 2), established the Monument, described the purposes of the Monument, and made certain provisions for its management, including the following:

- Federal lands within the Monument are withdrawn from new mineral location or mineral leasing.

- Federal lands within the Monument boundaries will remain in public ownership, unless exchanged for lands that would further protect Monument resources.
- Establishment of the Monument is subject to valid existing rights.
- Establishment of the Monument does not diminish the responsibility and authority of the State of Utah for management of fish and wildlife, including regulation of hunting and fishing, on Federal lands within the Monument.
- Livestock grazing shall continue to be governed by applicable laws and regulations other than the Proclamation.
- Existing withdrawals, reservations, or appropriations are not revoked by the Proclamation, but such uses must be managed to protect Monument resources.
- Water is not reserved as a matter of Federal law. The Plan must address the extent to which water is necessary for the proper care and management of the objects of the Monument and the extent to which further action may be necessary pursuant to Federal or State law to assure the availability of water.

FEDERAL LAND POLICY AND MANAGEMENT AND NATIONAL ENVIRONMENTAL POLICY ACTS

The Federal Land Policy and Management Act of 1976, as amended, and the National Environmental Policy Act of 1969, as amended: Development of the Management Plan is guided by the legal authority found in FLPMA and NEPA. In developing land use plans, FLPMA and NEPA require that the BLM use an interdisciplinary approach and provide opportunities for public involvement and interagency coordination. In addition, FLPMA requires land use plans to:

- consider the present and potential uses of the public lands
- consider the scarcity of values involved
- rely on public lands inventories
- comply with pollution-control laws
- manage Wilderness Study Areas to ensure that their potential wilderness values are not impaired

Both NEPA and FLPMA require the BLM to provide the public with information about the effects of implementing land use plans.

Since the passage of FLPMA, the BLM has identified certain areas for Wilderness review. These areas, called Wilderness Study Areas (WSAs) and Instant Study Areas (ISAs), have been managed under the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP) (BLM Manual H-8550-1) since they were identified (Map 2.8 in Chapter 2). The objective of the IMP is to manage those lands such that their suitability for designation as Wilderness is not impaired. The WSAs and ISAs within the Monument will continue to be managed under the IMP, and the Monument Management Plan will only be carried out to the extent that it does not conflict with the IMP, unless action is taken by Congress. If Congress decides not to designate any WSA lands as wilderness, those lands would then be managed under the provisions of the Monument Management Plan. The evaluation of additional lands for WSA status is outside the scope of this Plan (see **Chapter 2 The 1999 Utah Wilderness Inventory and Section 202 Planning Process** for a more detailed discussion).

PLANNING CRITERIA

In addition to the planning considerations of the Proclamation and FLPMA, the BLM planning regulations (43 CFR 1610) require preparation of planning criteria to guide development of all resource management plans. Planning criteria ensure that plans are tailored to the identified issues and ensure that unnecessary data collection and analyses are avoided. Planning criteria are based on applicable law, agency guidance, public comment, and coordination with other Federal, state and local governments, and Native American Indian tribes.

The planning criteria used in developing the Grand Staircase-Escalante National Monument Management Plan are listed below. These reflect the criteria established prior to the development of the Draft Plan. Updates or new circumstances are included in brackets.

- The Plan will be completed in compliance with FLPMA and all other applicable laws. It will meet the requirement of the Proclamation to protect the objects of geological, paleontological, archaeological, historic, and biological value within the Monument. However, the full extent of the Monument's resources are not yet known.
- The Monument Planning Team will work cooperatively with the State of Utah, tribal governments, county and municipal governments, other Federal agencies, and all other interested groups, agencies and individuals.
- The Plan will establish the guidance upon which the BLM will rely in managing the Monument.
- The planning process will include an Environmental Impact Statement which will comply with National Environmental Policy Act standards.
- The Plan will emphasize the scientific and historic resources of the Monument. It will also identify opportunities and priorities for research and education related to the resources for which the Monument was created. In addition, it will describe an approach for incorporating research into management actions.
- Due to the size of the Monument, the number of entry points, the importance of emphasizing local community involvement in visitor services, the need to assure managerial efficiencies, and the overwhelming response during scoping, the Plan will assume that a single large scale office/visitor center is neither feasible nor desirable. Major facilities and services, whenever possible, will be located in nearby communities, outside the Monument boundaries, with locations based upon considerations such as the social, economic, and infrastructure factors in surrounding communities, as well as the need to facilitate effective management.
- The Plan will set forth a framework for managing recreational activities in order to provide for enjoyment of visitor experiences consistent with the Proclamation.
- The Plan will recognize valid existing rights within the Monument and review how valid existing rights are verified. The Plan will also outline the process the BLM will use to address applications or notices filed after completion of the Plan on existing claims or other land use authorizations.
- The management of grazing is regulated by laws and regulations other than the Proclamation. The Plan will incorporate the statewide standards and guidelines recommended by the Utah Bureau of Land Management Resource Advisory Council and accepted by the Secretary of the Interior. It will lay out a strategy for ensuring that proper grazing practices are followed within the Monument. In addition, the Plan will outline the subsequent NEPA and decision making processes that the BLM will follow to manage grazing within the Monument.
- The Plan will directly involve Native American Indian tribal governments by providing strategies for the protection of recognized traditional uses.
- The lifestyles of area residents, including the activities of grazing and hunting, will be recognized in the Plan.
- The Monument Plan will not address boundary adjustments. Boundaries were established by the President and cannot be adjusted administratively. [Since the DMP/DEIS was published, the boundary of the Monument was adjusted under Public Law 105-355.]
- The Monument Plan will recognize the State's responsibility and authority to manage wildlife, including hunting and fishing, within the Monument.
- Resolution of the State land inholding issue is a priority for the Department of the Interior and the BLM, and is being addressed separately from the Management Plan. Both State and private inholdings within the Monument are covered by the analysis in this document, although this draft document does not propose decisions for acquisition or management of these lands. If the BLM acquires these lands, they will be managed consistent with the Plan, subject to any constraints associated with the acquisition. [Note: Since the DMP/DEIS was published, the State lands and mineral interests within the Monument

have been acquired by the BLM under the Utah Schools and Land Exchange Act (Public Law 105-335).]

- The Plan will address transportation and access, and will identify where better access is warranted, where access should remain as is, and where decreased access is appropriate to protect Monument resources and manage visitation.

SIGNIFICANT EVENTS AND CHANGES SINCE PUBLICATION OF THE DRAFT PLAN

CHANGES IN MANAGEMENT SITUATION

Several events since publication of the DMP/DEIS have improved both the Monument management situation and the ability of the BLM to implement the direction outlined in the Proclamation. These events have also reduced the number of potentially serious conflicts. First and most important, the Utah Schools and Land Exchange Act, signed into law in October 1998, resulted in the conveyance to the Federal government of all State school trust lands within the Monument, in exchange for public lands and interests in lands elsewhere in Utah (Map 1.2). Unlike the Federal lands in the Monument, school trust lands were to be managed for economic development, creating the risk that development on trust lands could have harmed Monument resources. Resolution of the longstanding and contentious state inholding issue ensures that over 175,000 acres of former State inholdings will be managed for Monument purposes, subject to valid existing rights.

Another law passed in October 1998 (Public Law 105-355), adjusted the boundaries of the Monument to include certain lands (a one-mile strip north of Church Wells and Big Water) containing important resources such as valuable archeological artifacts and paleontological objects (Map 1.3). This Act also resolved one minor trespass and other boundary issues around the communities of Henrieville, Cannonville, Tropic, and Boulder. These minor boundary adjustments resolved several issues of concern to local communities, preventing potential management conflicts in the future.

Based on overwhelming public input that emphasized local community involvement in visitor services, it was proposed in the DEIS that major facilities and services be located in nearby communities, outside the Monument boundary. Since publication of the DEIS, the BLM and local communities have agreed on which communities would host certain visitor facilities (see Chapter 2 **Visitor Facilities in the Gateway Communities** for a discussion of these proposed locations). While precise locations within the communities are yet to be finalized (issues such as the availability of infrastructure, and economic considerations remain), the decision to locate these facilities within the communities significantly contributes to the protection of resources by focusing economic development, services, and associated infrastructure outside Monument boundaries.

CHANGES BETWEEN THE DRAFT AND PROPOSED PLAN

The BLM is committed to providing opportunities for meaningful public participation in all resource management planning processes. Since publication of the Draft Plan, over 6,800 comments have been received. These comments contained valuable input and were carefully considered, along with internal recommendations and new information, to modify the Preferred Alternative laid out in the Draft Management Plan. The nature of these changes fall generally into three categories: clarifications, technical corrections, and policy decision changes.

Many of the changes between the Draft and Proposed Plans are clarifications based on misunderstandings or requests for more information. Clarifications and additional information have been provided to more fully explain what was intended in the Draft Plan. For example, limitations on the overall numbers of visitors (allocations) were referred to in the Draft as a tool available to protect resources in certain zones. The Proposed Plan provides more detail on what those allocations would entail and how decisions on allocations would be made. Other examples are the Advisory Committee and Adaptive Management Process referred to in the Draft Plan. This Plan provides a more detailed discussion on the make-up of the committee and a detailed

BEST COPY AVAILABLE

25

description of how adaptive management would function in implementation of this Plan (Appendix 3).

A few changes or modifications of policy decisions have been made to the Preferred Alternative in order to arrive at this Proposed Plan. These changes are drawn from other alternatives analyzed in the DEIS and are based on public comment and new information. One important example is zone boundaries. Zones boundaries were refined based on topographical and dominant terrain considerations, and the Burr Trail was moved from the Frontcountry to the Passage Zone. These changes altered the percentages of each zone. Another example is group size. Group size limits have been altered in all zones. One change was to eliminate group size limits in the Frontcountry Zone, because this zone would be the focal point for visitors and is along major highways where bus tours and other large groups will see the Monument. Group size limits on these highways are not consistent with the intent to focus visitation on the periphery of the Monument in these areas. Group size limits were also altered in the other zones in order to accommodate long time uses and to make the Primitive Zone consistent with similar zones on adjacent National Park units. These group sizes are considered consistent with the protection of resources, and allocations of overall number of visitors or other tools would be used to protect resources if needed. A third example is filming. Instead of allowing commercial filming in some zones and prohibiting it in others (as outlined in the Preferred Alternative), this Plan would allow minimum impact filming in all zones. This would allow for documentary or very low impact filming that is consistent with the protection of Monument resources and the other prescriptions for the zones, but would prohibit all filming that could detrimentally impact Monument resources.

Other changes made since publication of the Draft Plan include technical corrections such as errors in addition, inaccuracies in maps, and other errors. These items raised in public comments or found internally are corrected in the **Errata** found at the end of this document.

Table 1.1 provides a comparison summary of the decisions in each of the alternatives in the DEIS and the decisions in the Proposed Plan. Because the acreage contained in the Monument has changed between the Draft and the Proposed Plans for the reasons explained previously, comparisons are provided as a percentage of total acres. Even though many decisions did not change between the Preferred Alternative in the DEIS and the Proposed Plan (e.g., campfires, trail construction), zone percentages differ slightly between the two due to zone boundary refinements.

WHAT'S NEXT IN THE PLANNING PROCESS

Upon publication of this Plan, a 30-day protest period and a 60-day Governor's Consistency review will be held (Protest Procedures are outlined at the beginning of this document).

The Record of Decision (ROD) and the Approved Management Plan will then be prepared. Approval will be withheld on any portion of the Proposed Plan under protest until final action has been completed on any protests. Distribution of the ROD/Approved Plan is expected to occur in the Fall of 1999.

Table 1.1
Alternative Comparison

(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	**Alternative A (DEIS - No Action)**	**Alternative B (DEIS - Preferred)**	**Alternative C (DEIS)**	**Alternative D (DEIS)**	**Alternative E (DIES)**
Zones	Frontcountry 4% Passage 2% Outback 29% Primitive 65%	no zones	Frontcountry 7% Passage 2% Outback 30% Primitive 61%	Intensive 9% Management Research 21% Transition 14% Landscape Research 56%	Enhanced 7% Rustic 10% Remote 83%	Scenic Highways 2% Rural 2% Backcountry 9% Foot and Hoof 22% Primitive Motorized 25% Primitive 40%
Air quality	• continue to be managed as a Prevention of Significant Deterioration Class II area	• continue to be managed as a Prevention of Significant Deterioration Class II area	• continue to be managed as a Prevention of Significant Deterioration Class II area	• continue to be managed as a Prevention of Significant Deterioration Class II area	• pursue obtaining a Prevention of Significant Deterioration Class I redesignation	• continue to be managed as a Prevention of Significant Deterioration Class II area
Campfires	• allowed in designated fire grates, pits, or mandatory fire pans on 6% • allowed, fire pans encouraged on 93% • not allowed on 1%	• allowed on 100 %	• allowed in designated fire grates, pits, or mandatory fire pans on 9% • allowed, fire pans encouraged on 90% • not allowed on 1%	• allowed on 43% • not allowed on 57%	• allowed in designated fire grates, pits, or mandatory fire pans on 99% • not allowed on 1%	• allowed in designated fire grates, pits, or mandatory fire pans on 4% • allowed, fire pans encouraged on 95% • not allowed on 1%
Camping	• dispersed camping allowed on 94% • designated areas only on 6%	• dispersed camping allowed on 100%	• dispersed camping allowed on 93% • designated areas only on 7%	• dispersed camping allowed on 99% • designated areas only on 1%	• dispersed camping allowed on 99% • designated areas only on 1%	• dispersed camping allowed on 100%
Communication sites	• allowed on 6% • allowed on 29% where no other reasonable location exists • allowed on 65% only for safety purposes and only where no other alternative exists	• allow only where necessary on 100%	• allowed on 9% • allowed on 91% where no other reasonable location exists	• considered on a case-by-case basis on 30% • not allowed on 70%	• allowed on 7% • not allowed on 93%	• allowed on 38% • not allowed on 62%

Table 1.1
Alternative Comparison

(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	Alternative A (DEIS - No Action)	Alternative B (DEIS - Preferred)	Alternative C (DEIS)	Alternative D (DEIS)	Alternative E (DIES)
Competitive and special events	• competitive events not allowed on 100% • special events may be approved, by permit, if they meet other zone requirements	• continue to manage permits approved in 1997 (2)	• not allowed on 100%	• allowed on 30% • not allowed on 70%	• allowed on 7% • not allowed on 93%	• allowed on 13% • not allowed on 87%
Filming	• minimum impact allowed on 100% if other zone restrictions are met	• allowed on 100%	• minimum impact allowed on 38% • not allowed on 62%	• not allowed on 100%	• minimum impact allowed on 7% • not allowed on 93%	• minimum impact allowed if used as an interpretive tool on 100%
Group size	• no group size limit on 4% • group size limit of 25 people on 31%, larger groups may be allowed by permit if criteria are met • 12 people and 12 animals on 65%, can get permit for the Paria River Corridor for up to 25 people • further restriction on group size could be implemented if resource damage is occurring	• no group size limit on 100% • recommended group size limit of 12 in Escalante Canyons	• group size limit of 25 people and/or animals on 9% • group size limit of 12 people and/or animals on 91%	• group size limit of 50 people and/or animals on 42% • group size limit of 12 people and/or animals on 58%	• group size limit of 25 people and/or animals on 7% • group size limit of 12 people and/or animals on 93%	• no limit on 2% • group size limit of 75 people and/or animals on 11% • group size limit of 12 people and/or animals on 87%

Table 1.1
Alternative Comparison

(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	Alternative A (DEIS - No Action)	Alternative B (DEIS - Preferred)	Alternative C (DEIS)	Alternative D (DEIS)	Alternative E (DIES)
GSENM Advisory Committee	• one advisory committee would be chartered under Federal Advisory Committee Act (FACA) to advise on science issues and the achievement of management objectives	• none existing	• a science advisory group would be chartered under FACA to advise on the Monument research program and its integration with Monument management • a Monument advisory group would be established after the Plan is completed to advise management on a variety of topics	• a Monument advisory group would be established after the Plan is completed to advise management on a variety of topics	• a Monument advisory group would be established after the Plan is completed to advise management on a variety of topics	• a Monument advisory group would be established after the Plan is completed to advise management on a variety of topics
Minor facilities (interpretative sites, picnic areas, etc.)	• allowed for a variety of purposes on 6% • not allowed except for resource protection on 29% • not allowed on 65%	• none identified, develop as needed	• allowed for a variety of purposes on 7% • not allowed except for resource protection on 32% • not allowed on 61%	• allowed for a variety of purposes on 30% • not allowed on 70%	• allowed for a variety of purposes on 7% • not allowed except for resource protection or visitor safety on 10% • not allowed on 83%	• allowed for a variety of purposes on 13% • not allowed on 87%
Outfitters and guides	• allowed if outfitter/guide activities are appropriate to the zone on 100%	• allow existing permits • no new permits	• allowed if outfitter/guide activities are appropriate to the zone on 100%	• allowed if outfitter/guide activities are appropriate to the zone on 86% • not allowed on 14%	• allowed if outfitter/guide activities are appropriate to the zone on 100% • some sites may require a guide	• allowed if outfitter/guide activities are appropriate to the zone on 100%

Table 1.1
Alternative Comparison
(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	**Alternative A (DEIS - No Action)**	**Alternative B (DEIS - Preferred)**	**Alternative C (DEIS)**	**Alternative D (DEIS)**	**Alternative E (DEIS)**
Parking area and trailhead construction	• allowed for a variety of purposes on 6% • allowed only for resource protection on 29% • not allowed on 65%	• allowed, as needed, for resource protection	• allowed for a variety of purposes on 7% • allowed only for resource protection or visitor safety on 32% • not allowed on 61%	• allowed for a variety of purposes on 30% • not allowed on 70%	• allowed for a variety of purposes on 7% • allowed for resource protection or visitor safety on 10% • not allowed on 83%	• allowed for a variety of purposes on 38% • not allowed on 62%
Recreation use allocation	• could be implemented on 96% • would not allocate on 4%	• no allocations	• could be implemented on 93% • would not allocate on 7%	• could be implemented on 100%	• could be implemented on 100%	• could be implemented on 87% • would not allocate on 13%
Research - non-surfacing disturbing	• allowed and encouraged on 100% • permits required	• continue to support • continue to identify opportunities and priorities	• allowed and encouraged on 100% • permits required	• allowed and encouraged on 100% • permits required	• allowed and encouraged on 100% • permits required	• encouraged at visitor sites to protect resources and use as an interpretive tool on 35% • priority for inventory and field studies on 65% • permits required

Table 1.1

Alternative Comparison

(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	Alternative A (DEIS - No Action)	Alternative B (DEIS - Preferred)	Alternative C (DEIS)	Alternative D (DEIS)	Alternative E (DEIS)
Research - surface disturbing	• allowed on 35% • could be allowed on 65% for extremely high value research opportunities that are not available elsewhere or which focus on protecting Monument resources at risk. The GSENM Advisory Committee could be asked for recommendations on whether research proposals merit exceptions to zone prescriptions. • permits required	• allowed within the constraints of law	• allowed on 38% • could be allowed on 62% for unique research opportunities with extremely high value • permits required	• allowed for scientific purposes on 30% • not allowed on 70% except for unique research opportunities • permits required	• allowed on 7% • could be allowed on 93% if research could not be done elsewhere, or if it directly relates to or is dependent on remoteness • permits required	• allowed if done as an interpretive tool 13% • allowed on 87% only if it cannot be done elsewhere • permits required
Signing	• allowed for a variety of purposes on 6% • allowed only for resource protection or visitor safety on 94%	• continue to provide as needed	• allowed for a variety of purposes on 7% • allowed only for resource protection or visitor safety on 32% • allowed only for resource protection on 61%	• allowed for a variety of purposes on 44% • allowed only for resource protective on 56%	• allowed for a variety of purposes on 7% • allowed only for resource protection or visitor safety on 10% • allowed only for resource protection on 83%	• allowed for a variety of purposes on 60% • not allowed on 40%
Toilets	• allowed on 6% • allowed only to protect resources on 29% • not allowed on 65%	• allowed where needed to address health and safety concerns	• allowed on 39% • not allowed on 61%	• allowed on 44% • could provide temporary facilities to accommodate research on 56%	• allowed on 17% • not allowed on 83%	• allowed on 60% • not allowed on 40%

Table 1.1
Alternative Comparison
(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	**Alternative A (DEIS - No Action)**	**Alternative B (DEIS - Preferred)**	**Alternative C (DEIS)**	**Alternative D (DEIS)**	**Alternative E (DEIS)**
Trail construction	• allowed for a variety of purposes on 6% • allowed only to protect sensitive resources on 94%	• allowed	• allowed for a variety of purposes on 9% • allowed only to protect sensitive resources on 91%	• allowed for research and resource protection on 44% • not allowed on 56%	• allowed for a variety of purposes on 7% • allowed only to protect sensitive resources on 93%	• allowed for a variety of purposes on 13% • allowed only to protect sensitive resources on 22% • not allowed on 65%
Trail maintenance	• allowed on 6% • allowed only for resource protection on 94%	• allowed as needed	• allowed on 7% • allowed only for resource protection on 93%	• allowed on 44% • allowed only for resource protection on 56%	• allowed on 7% • minimum level of maintenance only on 93%	• allowed on 35% • minimum level of maintenance only on 65%
Transportation system	• 1,080 total miles of routes open for public or administrative use, including: -345 miles designated open for street legal vehicles only -543 miles open for street legal and non-street legal ATV and dirt bike use -192 miles open for administrative purposes only (Note: The above total does not include 20 miles of routes through private lands. Miles of routes through private lands were reported in the DEIS Alternatives A- E totals.)	• 2,167 miles of routes open (Note: The above number is slightly lower than reported in the DEIS due to minor GIS calculation errors.)	• 1,128 total miles of routes open for public or administrative use, including: -227 miles designated open for street legal vehicles only -591 miles open for street legal and non-street legal ATV and dirt bike use -310 miles open for administrative purposes only (Note: The above numbers are different than those in the DEIS, due to an error in administrative miles. See Errata for details.)	• 1,365 total miles of routes open for public or administrative use, including: -1,186 miles designated open for street legal vehicles only -non-street legal ATV and dirt bike use prohibited on all routes -179 miles open for administrative purposes only (Note: The above numbers are slightly lower than those reported in the DEIS due to minor GIS calculation errors.)	• 790 total miles of routes open for public or administrative use, including: -760 miles designated open for street legal vehicles only -non-street legal ATV and dirt bike use prohibited on all routes - 30 miles open for administrative purposes only	• 1,342 total miles of routes open for public or administrative use, including: -284 miles designated open for street legal vehicles only -976 miles open for street legal and non-street legal ATV and dirt bike use -82 miles open for administrative purposes only (Note: The above numbers are slightly lower than those reported in the DEIS due to minor GIS calculation errors.)

32

Table 1.1
Alternative Comparison

(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	**Alternative A (DEIS - No Action)**	**Alternative B (DEIS - Preferred)**	**Alternative C (DEIS)**	**Alternative D (DEIS)**	**Alternative E (DEIS)**
Utility rights-of-way (pipelines, powerlines, etc.)	• allowed on 6% • allowed on 29% where no other reasonable location exists • not allowed on 65%	• allow only those necessary	• allowed on 9% • allowed on 30% where no other reasonable location exists • not allowed on 61%	• allowed on 30% • not allowed on 70%	• allowed on 7% • not allowed on 93%	• allowed on 38% • not allowed on 62%
Vegetation restoration methods	• the following methods could be used to restore natural systems and to protect sensitive resources on 100%: - chemical - biological - hand cutting - management ignited fire • mechanical not allowed on 65%	• maintain existing or allow new only to protect or enhance Monument resources • management ignited fire used to restore natural systems or to reduce hazardous fuels	• the following methods would be allowed to restore natural systems and to protect sensitive resources on 100%: - chemical - biological - hand cutting - management ignited fire • mechanical not allowed on 61%	• the following would be allowed on 86%: - chemical - biological - hand cutting - management ignited fire • mechanical not allowed on 30% • no methods allowed on 14%	• the following would be allowed for the protection of sensitive resources on 100%: - limited chemical - hand cutting - management ignited fire	• the following would be allowed as needed on 15%: -mechanical -chemical -biological -hand cutting -management ignited fire • management ignited only on 22% • management ignited fire and hand cutting only on 23% • no methods allowed on 40%
Visual Resource Management	VRM Classes: • Class II (68%) • Class III (32%)	VRM Classes: • Class II (68%) • Class III (30%) • Class IV (2%)	VRM Classes: • Class II (68%) • Class III (30%) • Class IV (2%)	VRM Classes: • Class II (68%) • Class III (30%) • Class IV (2%)	VRM Classes: • Class II (68%) • Class III (30%) • Class IV (2%)	VRM Classes: • Class II (68%) • Class III (30%) • Class IV (2%)

33

BEST COPY AVAILABLE

Table 1.1
Alternative Comparison

(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	**Alternative A (DEIS - No Action)**	**Alternative B (DEIS - Preferred)**	**Alternative C (DEIS)**	**Alternative D (DEIS)**	**Alternative E (DIES) -**
Water developments (non-culinary)	• could be used as a management tool: - only when the water development would not jeopardize or dewater streams or springs, and - only when there are no other means to achieve the following objectives: - for better distribution of existing livestock to protect resources - to restore or manage native species or populations	• could be used to protect or enhance resources	• could be used as a management tool throughout the Monument to protect resources or to restore natural systems	• could be used as a management tool throughout the Monument to protect resources or to restore natural systems	• no new water developments	• could be used as a management tool throughout the Monument to protect resources, to facilitate visitor use, or to manage livestock and wildlife
Water quality	• request that the State accelerate identification of total maximum daily load for 303d listed waters	• water quality monitoring would continue in cooperation with the State	• request that the State accelerate identification of total maximum daily load for 303d listed waters	• request that the State accelerate identification of total maximum daily load for 303d listed waters	• request that the State accelerate identification of total maximum daily load for 303d listed waters	• water quality monitoring would be implemented when ground disturbance or other factors could adversely affect water quality. Mitigation would be required if adverse affects were detected.

Table 1.1
Alternative Comparison
(This is a comparative summary of the Proposed Plan and the Draft Planning Alternatives. More detail on Alternatives A through E can be found in the Draft Management Plan/Draft Environmental Impact Statement, published November 1998. More detail on the decisions in the Proposed Plan can be found in Chapter 2 of this document.)

	Proposed Plan (FEIS)	**Alternative A (DEIS - No Action)**	**Alternative B (DEIS - Preferred)**	**Alternative C (DEIS)**	**Alternative D (DEIS)**	**Alternative E (DIES)**
Wildlife Services (formerly Animal Damage Control)	• coyote control measures would be limited to the taking of individual animals within the immediate vicinity of verified livestock kills, where reasonable livestock management measures to prevent predation have been taken and have failed • no traps, poisons, or use of M44s would be allowed	• APHIS would be urged, through amendments to existing agreements and other measures, to target individual predators, rather than predator populations	• limited to the taking of individual animals responsible for verified livestock kills, where reasonable livestock management measures to prevent predation have been taken and have failed	• limited to the taking of individual animals responsible for verified livestock kills, where reasonable management measures to prevent predation have been taken and have failed	• no animal damage control activities would take place within the Monument	• would be restricted where it conflicts with recreational use • limited to control activities that achieve and maintain natural animal population dynamics, and population distributions, or which do not conflict with this objective

Chapter 2

Proposed Management Plan

BEST COPY AVAILABLE

INTRODUCTION

The Presidential Proclamation which establishing Grand Staircase - Escalante National Monument (GSENM) directed the Secretary of the Interior to prepare a management plan for the Monument. The Proclamation also directed that the Monument be managed pursuant to applicable legal authorities. In accordance with these directives, the Monument Planning Team embarked on the planning process described in Chapter 1. A Draft Management Plan and Draft Environmental Impact Statement (DMP/DEIS) was published in November 1998.

The original 90 day public comment period was extended for an additional 30 days, ending on March 15, 1999. About 6,800 written responses were received, as well as hundreds of verbal comments gathered by the Team during a series of public information meetings held across the Nation. These comments were analyzed and carefully considered, along with recommendations from Bureau of Land Management (BLM) and Department of the Interior officials. The Proposed Plan is based upon the Preferred Alternative laid out in the DEIS, with modifications to reflect public comment.

GENERAL DIRECTION

This Proposed Management Plan is founded on the directions outlined in the BLM 1997 Strategic Plan. All lands administered by the BLM, including Grand Staircase - Escalante National Monument, are managed to achieve this mission:

Sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations by:

- serving current and future publics;
- restoring and maintaining the health of the land;
- promoting collaborative land and resource management; and
- improving business practices and human resource management.

MONUMENT MANAGEMENT DIRECTION

Grand Staircase - Escalante National Monument is unique among the public lands managed by the BLM. Its size, resources and remote character provide a spectacular array of scientific, public education, and exploration opportunities. It also has a purpose, delineated in the Presidential Proclamation, that is more specific than other BLM administered lands. The following two basic precepts provide the overall vision for future management of this very special place.

1. First and foremost, the Monument remains a frontier. The remote and undeveloped character of the Monument is responsible for the existence and quality of most of the scientific and historic resources described in the Presidential Proclamation.

   Safeguarding the remote and undeveloped frontier character of the Monument is essential to the protection of the scientific and historic resources as required by the Proclamation.

2. Second, the Monument provides an unparalleled opportunity for the study of scientific and historic resources. In addition to the study of specific scientific resources, this setting allows study of such important issues as: understanding ecological and climatic change over time; increasing our understanding of the interactions between humans and their environment; improving land management practices; and achieving a properly functioning, healthy, and biologically diverse landscape. Scientific study would be supported and encouraged, but potentially intrusive or destructive investigations would be carefully reviewed to avoid conflicts with the BLM's responsibility to protect and preserve scientific and historic Monument resources.

Within these two basic precepts, the Proclamation and management policy specify that other activities can and should continue to occur. Four additional statements round out the overall vision for GSENM.

- While much of the Monument exhibits qualities where the Earth and its community of life show little evidence of human influence, it is also true that generations of people have used lands within the

Monument for many different purposes. The Proclamation directed that the Monument remain open to certain specific uses under existing laws and regulations. These include valid existing rights, hunting, fishing, grazing and pre-existing authorizations. To the extent consistent with existing rights, these uses would be managed in a manner that protects Monument resources.

- The Monument staff would work with local communities to provide needed infrastructure development such as communications sites and utility rights-of-way. As with other uses, this type of development would be limited to small areas of the Monument. In addition, it must be done in a manner that would not cause serious impacts to protected resources or significantly change the undeveloped character of the Monument.

- While interpretation and recreation would be accommodated, and in some areas developed, the intention of these management activities would be to contribute to the protection and understanding of Monument resources. Developed recreational and interpretive sites would be limited to small areas of the Monument. At these sites visitors could experience, and come to better understand, the scientific resources of the Monument and the process and importance of scientific research in improving our knowledge of natural systems. This could be accomplished without causing serious impacts to the resources themselves. Undeveloped recreation would be accommodated as long as no significant impacts to Monument resources would occur. Limits on large groups, commercial uses, and even limits on overall numbers of individuals would be used when needed to prevent impacts to Monument resources.

- Finally, the short history of the Monument has already established a pattern for an inclusive and collaborative effort to protect, identify, assess, and where appropriate, research or interpret resources found in GSENM. The Monument staff would continue to work with local, state and Federal partners, scientists, Native American Indians, and the public to refine management practices that would insure protection, facilitate scientific and historic research, respect authorized uses, and allow appropriate visitation.

The remainder of this chapter describes objectives and actions aimed at fulfilling the principles above. The following section describes a set of general management objectives common to all resources. These general management objectives are followed by a discussion of objectives and actions specific to the major resources considered in this Plan. The resource discussions are followed by a description of a zoning strategy designed to manage uses in accordance with resource protection objectives. Following the zone discussion, actions such as research and livestock grazing that would be managed the same across zones are discussed.

OVERALL RESOURCES AND MANAGEMENT OBJECTIVES

Given the above direction and the direction found in the Proclamation, the Federal Land Policy and Management Act (FLPMA), and other governing laws, the overall objectives of the BLM with respect to the geological, archaeological, historic, biological (including soils, vegetation, fish and wildlife, and special status species), water, and air resources would be to:

- **manage uses to prevent damage to the resources listed above,**
- **increase public education and appreciation of such resources through interpretation, and**
- **facilitate appropriate research to improve understanding of such resources and to improve methods of protecting these resources.**

A discussion of how these objectives would be achieved for each resource follows this section. The discussion includes more specific objectives and actions for each resource where appropriate. Further actions aimed at meeting these overall objectives, including a zoning strategy, are also discussed in subsequent sections. More detailed background on each resource can be found in Chapter 3 of the DEIS.

SPECIFIC RESOURCE OBJECTIVES AND ACTIONS

GEOLOGY

"...The monument is a geologic treasure of clearly exposed stratigraphy and structure..." (Proclamation 6920, 1996)

Ranging in age from Permian through Quaternary, the sedimentary rocks and surficial deposits within GSENM record nearly 270 million years of the geologic history. These geologic strata are important for the outstanding research opportunities that they present and for the scenic beauty that they create.

Generally, the major geologic attributes of the Monument, such as regional stratigraphic units and regional structures, are not at risk of degradation from land management practices or visitor use. For the most part, the landform sculpting processes involving a combination of water, wind, and tectonism began in the more recent geologic past and continue unabated today. Geomorphologic features such as arches, natural bridges, hogbacks, pinnacles, and slot canyons (small-scale expressions of geological processes) are the features people most often associate with the term "geology." In fact, most of the scenic qualities of the Monument exist because of the combination of climatic processes, geologic structure, and the underlying rock-types.

Much as the geomorphology of the Monument holds the interest of visitors, some of the features themselves can be hazards and are often the result of processes that constitute other geologic hazards. Geologic hazards can include flash floods and debris flows, landslides, rock falls, expansive and collapsible soils, and naturally ignited coal fires.

Program efforts for inventorying and assessing the potential for geologic hazards as they might relate to visitor safety, visitor facilities, rights-of-way, communication sites, and transportation routes would continue. Visitor activities could be restricted in high-hazard areas or in areas where damage to sensitive geomorphologic features may occur. Examples include restrictions on camping in known flood channels, debris basins, sensitive soil areas, or rock-climbing near arches or natural bridges. Design or location of designated primitive camping areas, trailheads, or communication structures may be affected by geologic hazards. Further management actions aimed at meeting general resource protection objectives are outlined later in this chapter.

PALEONTOLOGY

"...The monument includes world class paleontological sites..." (Proclamation 6920, 1996)

Monument lands contain widespread and varied paleontological resources. Paleontological sites contain a wealth of information about prehistoric life and environments during the last part of the Paleozoic Era (about 270 million years ago) as well as throughout the Mesozoic Era (245 to 66 million years ago). The sequence of rocks found on the Kaiparowits Plateau contains one of the best and most continuous records of Late Cretaceous terrestrial life in the world. Monument paleontological resources are important to members of the scientific community as well as academic institutions, private organizations and other interested individuals from around the world. These sites also provide opportunities to visitors for education and enjoyment.

The BLM would continue to inventory the Monument for paleontological resources and evaluate their potential for protection, conservation, research, or interpretation. High-use areas within the Monument would have high priority for inventory efforts. Beyond high-use areas, inventory and research efforts would be expanded to fill in the information gaps on formations and other information needs. Such research would be coordinated as part of the adaptive management framework discussed in Appendix 3.

A range of methods to manage visitor use and other activities would be used to protect paleontological resources from intentional or inadvertent damage. Many of these prescriptions are discussed in subsequent sections, along with other actions aimed at meeting general resource protection objectives. Among other things, these prescriptions would limit vehicular travel to designated routes and prohibit collecting of Monument resources without a permit to do so for research. A monitoring program would be used to assess management needs of sensitive sites and areas. In addition, all proposed projects would be required to include a paleontological site inventory, and appropriate strategies would be used to avoid sensitive sites, restrict access to the sensitive resource (i.e., construct barriers), or as a last resort, excavating and curating the resource.

Public education and interpretation would also be emphasized to improve visitor understanding of paleontological resources and to prevent damage. Collaborative partnerships with volunteers, universities and other research institutions would be pursued to document, preserve, monitor or interpret sites consistent with the overall objective of protecting paleontological resources.

ARCHAEOLOGY

"...Archeological inventories carried out to date show extensive use of places within the monument by ancient Native American cultures...Many more undocumented sites that exist within the monument are of significant scientific and historic value worthy of preservation for future study..." (Proclamation 6920, 1996)

Monument lands contain an extensive array of varied, non-renewable prehistoric archaeological sites, including clusters of unique sites that represent contact between the Fremont and Anasazi, particularly in the Kaiparowits region. These "cultural resources" are valued by Native American Indian tribes, local communities, the scientific community, private organizations and interested individuals from around the world. These sites represent an important record of prehistoric and historic cultures and events that have intrinsic value to contemporary Native American Indians who still have cultural, historic and religious ties to these resources. Furthermore, these prehistoric sites provide opportunities to visitors for education and enjoyment.

The BLM would continue to inventory and conduct project compliance for archaeological resources. This would be done in order to evaluate their potential for protection, conservation, research, or interpretation. Cultural surveys in high-use areas, such as along trails and open routes, would be prioritized to ensure protection of vulnerable resources. Beyond these areas, inventory and research efforts would be expanded to fill in the information gaps and complete research that would contribute to the protection of sites. Such research would be coordinated as part of the adaptive management framework discussed in Appendix 3. The BLM would use the information collected to create a better understanding of cultures, join with the other sciences in interdisciplinary studies for improving land management practices, and work to showcase and preserve remnants of Native American Indian cultures within the Monument.

A range of methods to manage visitor use and other activities would be used to protect archaeological resources from intentional or inadvertent damage. Many of these prescriptions are discussed later in this chapter, along with other actions aimed at meeting general resource protection objectives. Among other things, these prescriptions would limit vehicular travel to designated routes, limit dispersed camping in certain areas, and would prohibit collection. In addition, all proposed projects would continue to include a site inventory for archaeological resources, and appropriate strategies would be used to protect sensitive sites. This would include avoiding the site altogether, restricting access to the sensitive resource (i.e., construct barriers), interpreting the resource, or as a last resort, excavating and curating the resource.

Public education and interpretation would also be emphasized to improve visitor understanding of archaeological resources and to prevent damage. Archaeological site etiquette information would be readily available to Monument visitors. Collaborative partnerships with Native American Indians, outfitters and guides, volunteers and universities would be pursued to document, preserve, study, monitor or interpret sites consistent with the overall objective of protecting archaeological resources.

Traditional Cultural Properties are those sites recognized by contemporary Native American Indians as important to their cultural continuity. These sites would be identified, respected, preserved and managed for continued recognized traditional uses. Consultation with the appropriate Native American Indian communities would be a priority. Uses on archaeological sites that cause site damage and/or that are inconsistent with the protection and use of Traditional Cultural Properties would be prohibited.

HISTORY

"...The monument has a long and dignified human history; it is a place where one can see how nature shapes human endeavors in the American West, where distance and aridity have been pitted against our dreams and courage..." (Proclamation 6920, 1996)

The distances, aridity, cliffs, and terraces have indeed shaped the communities which are located on the periphery of the Monument. It is, in fact, these factors that severely limited historic era settlement *within* the boundaries of GSENM and produced the landscape we see today. The Monument is surrounded by a number of communities that were established between the 1860s and the 1880s by Mormon settlers looking for new resources and lands to support their families. Early Mormon pioneers left many historic objects. These include trails, inscriptions, remnants of old towns (such as the Old Pahreah townsite), cabins, and cowboy line camps. They also constructed and traversed the renowned Hole-in-the-Rock Trail as part of their epic colonization efforts. Mormon settlers built homes, developed dams, reservoirs and irrigation systems, constructed wagon roads and livestock trails, and established cemeteries around and within the Monument. Evidence of many of these still exists.

In order to protect these important historic resources, the BLM would continue to inventory the Monument to identify historic resources and to evaluate their potential for conservation, research, or interpretation. This would include efforts to evaluate historical and cultural properties for nomination to the National Register of Historic Places. Surveys in high-use areas such as along trails and open routes would be prioritized to ensure protection of vulnerable resources. Beyond these areas, inventory and research efforts would be expanded to fill in the information gaps and complete research that would contribute to protection of sites. Such research would be coordinated as part of the adaptive management framework discussed in Appendix 3.

A range of methods to manage visitor use and other activities would be used to protect historic resources from intentional or inadvertent damage. Many of these prescriptions are discussed later in this chapter, along with other actions aimed at meeting general resource protection objectives. Among other things, these prescriptions would limit vehicular travel to designated routes. These prescriptions would also prohibit collection of artifacts. In addition, all proposed projects would be required to include a site inventory for historic resources, and appropriate strategies would be used to protect sensitive sites. This would include avoiding the site altogether, restricting access to the sensitive resource (i.e., construct barriers), interpreting the resource, rehabilitating the resource, or as a last resort, excavating and curating the resource.

The BLM would establish continuing collaborative programs with local communities, organizations, local and state agencies, Native American Indian communities, outfitters and guides, volunteers, and other interested parties. This would be done in order to identify, inventory, monitor, and develop and implement plans for the restoration, stabilization, protection, and/or interpretation of appropriate sites and resources within the Monument. The collaborative programs would include the continuation of the current Oral History Program in cooperation with local communities. The Oral History Program focuses on the collection of histories from local residents and people knowledgeable about the region. It was created in order to document the history of the region and to increase understanding of the interactions between people and the environment of the Monument.

The BLM would use the information collected to create a better understanding of cultures and communities, join with the other sciences in interdisciplinary studies for improving land management practices, and work to showcase the histories of the local communities as part of the "long and dignified history" of the Monument.

SOILS AND BIOLOGICAL SOIL CRUSTS

"...Fragile cryptobiotic crusts, themselves of significant biological interest, play a critical role throughout the monument, stabilizing the highly erodible desert soils and providing nutrients for plants..." (Proclamation 6920, 1996)

Conservation of soil resources is important, as soil, combined with water, provides the base of support for life within the Monument. Soils in arid and semiarid regions are particularly critical to sustaining ecosystems because they can be more vulnerable to degradation from a number of natural and artificially induced disturbances.

Often referred to as cryptobiotic, cryptogamic, microbiotic, or cyanobacterial-lichen soil crusts, biological soil crusts consist of lichens, mosses, and algae usually binding a matrix of clay, silt, and sand. Biological soil crusts are formed by living organisms and their by-products, creating a surface crust of soil particles bound together by organic materials (USDA, 1997). Biological soil crusts, which are widespread but not pervasive, play an important ecological role in the Monument in the functioning of soil stability and erosion, atmospheric nitrogen fixation, nutrient contributions to plants, soil-plant-water relations, seedling germination, and plant growth.

This Plan calls for Monument-wide prescriptions, such as limiting vehicular travel to designated routes and limiting facilities construction within the Monument boundary, which would help conserve soils. The BLM would apply procedures to protect soils from accelerated or unnatural erosion in any ground-disturbing activity, including route maintenance and restoration. The effects of activities such as grazing, mineral exploration, or water developments would be analyzed through the preparation of project specific National Environmental Policy Act (NEPA) documents. This process would include inventories for affected resources and the identification of mitigation measures.

Prior to any ground disturbing activity, the potential effects on biological soil crusts would be considered and steps would be taken to avoid impacts on their function, health, and distribution. Long-term research toward preservation and restoration of soils would be part of the adaptive management framework (Appendix 3). Further research would be conducted on these crusts, and the results interpreted for management and education purposes.

VEGETATION

"...The blending of warm and cold desert floras, along with the high number of endemic species, place this area in the heart of perhaps the richest floristic region in the Intermountain West..." (Proclamation 6920, 1996)

The blending of three floristic provinces in the Monument provides the potential for a high degree of plant diversity. Steep canyons, limited water, seasonal flood events, unique and isolated geologic substrates, and large fluctuations in climatic conditions have all influenced the composition, structure, and diversity of vegetation associations of this region. The potential is great for research on many aspects of these vegetation associations, and protection of these areas is a primary concern in the management of the Monument.

With this in mind, the Monument would be managed to achieve a natural range of native plant associations. Management activities would not be allowed to significantly shift the makeup of those associations, disrupt their normal population dynamics, or disrupt the normal progression of those associations.

In addition to the above objective, the BLM would take measures to promote recovery and conservation of all special status plant species within the Monument (see the **Special Status Plant Species** section in this chapter). The BLM would continue to consult with the United States Fish and Wildlife Service (USFWS) to ensure that actions authorized by the BLM do not jeopardize the continued existence of any Federally listed plant species or result in the destruction or adverse modification of critical habitats. Activities would occur in conjunction with the U.S. Forest Service, the Utah Division of Wildlife Resources' Natural Heritage Program, and the National Park Service in areas where species cross jurisdictional lines.

The BLM would place a priority on the control of noxious weed species and prevent the introduction of new invasive species in conjunction with Kane and Garfield Counties and the adjacent U.S. Forest Service and National Park Service units. Further, in keeping with the overall vegetation objectives and Presidential Executive Order 11312, native plants would be used as a priority for all projects in the Monument. A more detailed discussion of noxious weed control efforts and the native plant policy can be found later in this chapter.

The BLM would also continue to coordinate with other organizations to inventory the Monument and evaluate the need for vegetation protection strategies. Such research would be coordinated as part of the implementation and adaptive management strategies outlined in Appendix 3, and the results would be interpreted for management and public education purposes.

In addition, a range of methods to manage visitor use and other activities would be used to protect vegetation associations in the Monument. Many of these prescriptions, including prohibiting the collection of plants and limiting vehicular travel to designated routes, are discussed later in this chapter, along with other actions aimed at meeting overall resource protection objectives. In addition, all proposed developments or surface disturbing activities would be required to include a site assessment for impacts to vegetation. Appropriate strategies would be used to avoid sensitive vegetation associations, and restoration provisions would be included in projects as described in the section on **Restoration and Revegetation** in this chapter.

Of particular interest in this area, as mentioned in the Proclamation, are relict plant communities, hanging gardens, and riparian resources. Sections that provide guidance on management of these resources specifically are included later in this chapter. Vegetation management activities or "tools," such as vegetation restoration methods (including management ignited fire), weed control, forestry product collection, reseeding after fires, and restoration of disturbed areas, which are also directly related to accomplishing the vegetation objectives, are also discussed later in this chapter. As described in those sections, all vegetation management activities must be done in accordance with the objective of achieving a natural range of native plant associations.

FISH AND WILDLIFE

"...The wildlife of the monument is characterized by a diversity of species...Wildlife, including neotropical birds, concentrate around the Paria and Escalante Rivers and other riparian corridors within the Monument..." (Proclamation 6920, 1996)

Within the boundaries of GSENM and surrounding areas, 362 species of vertebrate animals and 1,112 species of invertebrates have been identified. Given this diverse number of species, combined with the vastness of the Monument and other surrounding Federal lands, this area provides unique and relatively undisturbed habitat for wildlife. Having nearly entire ecosystems within its boundaries, the Monument remains a refuge and a place to learn about wildlife and associated habitats.

The Proclamation establishing the Monument states: "Nothing in this proclamation shall be deemed to diminish the responsibility and authority of the State of Utah for management of fish and wildlife, including regulation of hunting and fishing, on Federal lands within the Monument." At the same time, the Proclamation refers to the "outstanding biological resources" and " important ecological values" in the Monument. These resources, which encompass entire natural systems, including fish and wildlife habitat, are among those that the BLM has been given responsibility to manage and protect. The BLM's objective in managing habitat would be to work in conjunction with the Utah Division of Wildlife Resources (UDWR) in managing fish, wildlife, and other animals to achieve and maintain natural populations, population dynamics and population distributions in a way that protects and enhances Monument resources. The BLM would also work cooperatively with the UDWR to reestablish populations of native species to historic ranges within the boundaries of GSENM, and to take needed actions to protect and enhance the habitat of these native species.

An additional important objective of the BLM's habitat management program would be to work with State, local, and Federal partners to minimize or eliminate the need for additional listing of species under the Endangered Species Act, and to contribute to the recovery of species already listed as such (see the **Special Status Animal Species** section in this chapter). The BLM would work cooperatively with the USFWS and the UDWR to fulfill these responsibilities and meet the requirements of FLPMA, the Endangered Species Act, and other laws and regulations governing fish and wildlife.

To meet the above objectives, the BLM would manage habitats for the recovery or reestablishment of native populations through collaborative planning with local, State and Federal agencies, user groups and interested organizations. The BLM would also work with the UDWR to meet the requirements of Executive Order 11312 on Invasive Species. The BLM would continue to work with the UDWR to meet the goals described in adopted species management plans. The BLM would place a priority on protecting riparian and water resources as they relate to fish and wildlife, and would work cooperatively with the U.S. Forest Service to coordinate maintenance of fisheries and flows. The BLM would also limit additional adverse impacts to crucial habitats on Monument lands from developments to preserve the integrity of wildlife corridors and migration routes and access to key forage, nesting, and spawning areas. A key component of this strategy is the placement of major visitor facilities outside the Monument, and restricting the number and extent of minor facilities in the interior of the Monument.

A range of methods to manage visitor use and other activities would be used to protect fish and wildlife and their habitats. Many of these prescriptions are discussed later in this chapter, along with other actions aimed at meeting general resource protection objectives. Among other things, these prescriptions would limit vehicular travel to designated routes, prohibit large developments within the Monument, and prohibit climbing seasonally in areas sensitive for raptors. In addition, all proposed projects would be required to include a site assessment for impacts to fish and wildlife species. Appropriate strategies would be used to avoid sensitive habitat and restrict access to the sensitive habitats (i.e., construct barriers). Seasonal restrictions on visitor use could be implemented to protect crucial habitat and migration corridors. Water developments could be constructed for wildlife purposes if consistent with the overall objectives for fish and wildlife and with the water development policy discussed in the **Water-related Development** section of this chapter.

Given the fact that few comprehensive wildlife studies have been conducted on Monument lands, the BLM would continue to coordinate with the UDWR and other organizations to inventory for wildlife and to evaluate needs for habitat protection. Inventory and research efforts would be targeted to fill information gaps on habitat needs. Such research would be coordinated as part of the adaptive management framework discussed in Appendix 3.

Public education and interpretation would also be emphasized to improve visitor understanding of fish and wildlife species. Collaborative partnerships with volunteers and universities would be pursued to monitor and study biological resources consistent with the overall objective of protecting such resources.

WATER

"...with scarce and scattered water sources, the monument is an outstanding biological resource..." (Proclamation 6920, 1996)

The Proclamation establishing the Monument directs the Secretary of the Interior "to address in the management plan the extent to which water is necessary for the proper care and management of the objects of this Monument and the extent to which further action may be necessary pursuant to Federal or State law to assure the availability of water."

Water's Role in The Protection of Monument Resources

The Monument is vast and arid, but its "scarce and scattered water sources" are vital to a number of Monument resources. The landscape has been formed by water, its rock laid down in shallow seas or deposited by ancient streams and dune fields. Water continues to sculpt the rock, forming canyons and arches that characterize the area today. Water is also crucial to most biological resources within the Monument, including the communities of plants and animals associated with hanging gardens, seeps, springs, tinajas, and with ephemeral, intermittent, and perennial streams and ponds. Sensitive plant and animal species also rely upon scarce water resources, as do the riparian zones and entire natural systems that support those and other species. Water is also integral to the historic and prehistoric context of settlement patterns in and around the Monument. A more detailed description of the need for water in the proper care and management of Monument resources can be found in Chapter 3 of the DEIS. In addition, the monitoring strategy described in the **Strategy For Assuring Water Availability** section below would further enhance knowledge of the extent water is necessary to support resources.

The water necessary for the proper care and management of Monument resources falls into two general categories: (1) water needed for Monument facilities to accommodate researchers and other visitors; (for campgrounds, sanitary facilities, and administrative purposes), and (2) water needed for the protection of the historic and scientific objects of the Monument and the natural processes associated with them.

For several reasons, it is the water in the second category that is challenging to identify, quantify, and protect. Water in this category is referred to generally as "instream flows," and simply means allowing water as it naturally occurs in streams, seeps, springs, and other expressions of groundwater, and even precipitation, as one of the forces of nature, to continue to operate. The legal system of water law and water rights administration does not fully address that task. Precipitation generally becomes subject to the water law system only once it reaches a watercourse (typically defined as a stream or channel with an identifiable bed and banks), a groundwater aquifer, or is otherwise captured or contained in such a way that it can be used to satisfy established water rights. Furthermore, high volume flood flows generally are not appropriated and reduced to a water right, unless there is an impoundment or similar mechanism in place to capture and store these high flows for later use. Finally, while it is possible to perfect water rights in instream flows for non-consumptive, ecological and related uses, certain limitations on that method exist, as explained below.

Water flows in the Monument can be or are already protected in most instances by means other than formal water rights of any kind. Specifically, nearly all of the land within the Monument is Federally owned, and the BLM has broad powers over how those lands are used. The BLM can exercise its land management authorities to protect water flows by simply not allowing construction of storage, diversion, or conveyance facilities on these lands, and in many situations this can be as effective in protecting Monument resources as securing formal rights to such flows.

The approval of a water appropriation application by the Utah State Engineer does not create a water right, only the right to try to place the water to beneficial use and thereby establish a water right. If the proposed point of diversion is on land not owned by the applicant, land use permission is a necessary element of placing the water to legal beneficial use. The Utah State Engineer commonly makes this point in approving appropriation applications. In one such recent instance, he said, "Also this approval in no way grants right of trespass. Such rights-of-way are the responsibility of the applicant to obtain from the appropriate party." (Memorandum Decision, In the Matter of Change Application Number 97-6 (a21081), August 6, 1998)

Where the proposed point of diversion is on Federal land, the land managing agency can decide whether to allow the diversion and any related conveyance structures to be located on its land. Particularly where the BLM (along with other Federal agencies managing adjacent Federal land) manages the upper reaches or headwaters of water courses, it can (subject to valid existing rights, including water rights) effectively prevent others from coming onto Federal land to construct facilities and establish new water rights that might interfere with the water needs of Monument resources.

Protecting water and water-dependent resources through land management means is less effective in situations where watercourses found in the Monument arise outside the Monument and flow into it, or in situations where there are private inholdings within the Monument. In these situations, absent an instream flow right, the BLM generally cannot exercise its land management authority to protect those water resources from diversion on non-Federal land, even if such diversions may interfere with Monument resources. This is also true, to some extent, where a BLM boundary crosses a groundwater aquifer (i.e., where part of an aquifer lies beneath Monument land and part underlies non-Monument land). This can also occur where aquifers outside the Monument feed streams that flow into the Monument. It is questionable whether the BLM has any authority to prevent the pumping of groundwater from such aquifers (absent an instream flow water right), even though such pumping might interfere with water necessary for the protection of Monument resources.

Strategy For Assuring Water Availability

The BLM may obtain appropriative water rights under Utah State law where the BLM meets Utah State law requirements. Campground, visitor, sanitary, and other administrative uses are clearly "beneficial uses of water" under Utah State law, for which water rights may be granted by the Utah State Engineer. Furthermore, none of the four administrative basins established by the Utah State Engineer has yet been closed to new appropriations because they are considered fully appropriated. Utah State law also allows the United States and the BLM, as the land owner/managing entity, to obtain such water rights in its own name, rather than the actual users (i.e., the visitors). Where water is needed for visitor facilities, the BLM may pursue this option.

Instream flows are another matter. Instream flow is important to a number of Monument resources, and its continued availability is necessary for their proper care and management. Our review to date strongly suggests, however, that both currently and into the reasonably foreseeable future, sufficient water would continue to be available for these purposes. This is for several reasons. First, much of the water important to the Monument falls as precipitation within the Monument or on adjacent Federal lands, and is not subject to appropriation by others. Its continued availability for Monument resources can be safeguarded by appropriate Federal land management policies. Second, in those relatively few places where opportunities exist for appropriation under State law upstream from, or on private inholdings within the Monument, both current and reasonably foreseeable appropriations do not significantly threaten the continued availability of water in the Monument. Third, Federal law may already provide some protection, as discussed below.

For all these reasons, the BLM believes a sound strategy for assuring the continued availability of water for Monument resources is as follows:

(1) **Ensure that land management policies protect water resources.** Since much of the water important to the Monument falls as precipitation within the Monument, its continued availability can be ensured by appropriate land management policies within the Monument. The BLM would exercise its existing land management authorities to protect and maintain all available water and natural flows in the Monument. Several decisions described in later sections of this Plan are designed to meet this objective. These include the following:

BLANK PAGE

- Major visitor centers and facilities would be located outside of the Monument in local communities where there would be access to municipal water systems.
- The need for water for visitor facilities within the Monument would be minimal because the only facilities provided would be a relatively small number of modest pullouts, toilets, parking areas, trailheads, and picnic sites. Most of these sites do not require water, including most toilet facilities which could use other technologies. In the limited cases where water is needed for a visitor facility, the acquisition of State appropriative water rights (discussed above) should be possible.
- New water developments for other uses in the Monument (e.g., livestock, wildlife), could only be used when deemed to have an overall beneficial effect on Monument resources, including water sources and riparian areas. These developments could only be done where there is no other means to achieve resource protection objectives and only where the development would not jeopardize or dewater streams or springs.
- Diversions of water out of the Monument would not be permitted. An exception to this policy could be made for local community culinary needs if the applicant could demonstrate that the diversion of water would not damage Monument resources or conflict with the objectives in the Approved Monument Management Plan.

(2) Monitor to ensure water flowing into the Monument is adequate to support Monument resources. The purpose of the above measures is to protect water that originates in the Monument or water after it enters the Monument boundary. While these measures are currently considered adequate to ensure the continued availability of water to support Monument resources, the BLM would also assess whether the water flows coming into the Monument continue to be adequate. This would be part of an overall strategy work to assess the status of water resources within the Monument. The BLM would work with the Water Resources Division of the U.S. Geological Survey, the Utah Department of Natural Resources, and others to gather comprehensive information concerning precipitation, surface water flows, and subsurface water flows into and out of the Monument. This would include establishing additional stream-gauging stations at selected locations, and continued inventorying of water sources such as seeps, springs, and wells. Established climate-data stations would be an integral part of the hydrologic monitoring network. Some of the main objectives of water resource investigations would include, but would not be limited to:

- Conceptualizing the surface and ground-water systems, and their interactions at the regional (Monument) scale.
- Subdividing the Monument into smaller-scale hydrologic "compartments" on the basis of hydrologic and geologic attributes. Attributes, among others, could include surface-water drainage areas, aquifer systems, precipitation zones, hydraulic conductivity of surficial deposits and bedrock.
- Cataloging and classifying hydrologic attributes of the compartments, and establish appropriate long-term monitoring programs to collect spring and stream discharge and water chemistry data.
- Quantifying hydrologic processes such as surface-water and ground-water exchange, and precipitation, runoff, and sediment transport relationships within each compartment. In addition to new stream and spring monitoring stations, the existing network of climate stations would serve to gather appropriate data.
- Determining direct and indirect effects of humans on hydrologic attributes of each compartment and subsequent effects on Monument resources.

Recognizing that all components of the strategy could not be implemented at once and that measures to protect water that originates in the Monument are currently considered adequate, the priority in such a data collection effort would be to collect data on flows entering the Monument. This would be done in order to ensure sufficient base and peak flows to support Monument resources.

(3) Other options for assuring water availability, if needed. At any point that the above data collection and assessment effort suggests that adequate water to protect Monument resources is not entering the

Monument, or that water is otherwise being depleted to the detriment of the Monument, other measures for assuring water availability would be taken. These measures include:

- Cooperation with other Federal agencies that may already have Federal reserved water rights.
- Initiation of discussions with the Utah State Engineer (Utah Division of Water Rights), Utah Division of Water Resources, and State and local water users to identify how nearby communities could secure water supplies for expected future growth without interfering with the water flows needed for Monument resources.
- Other options are available to the BLM for assuring water availability. These options were discussed in detail in the DEIS. A summary of these options follows.

Appropriative Water Rights Under State Law

Under Utah State law, the only entities authorized to hold instream flow rights are the Utah Division of Wildlife Resources and the Utah Division of Parks and Recreation, and these entities have severe restrictions imposed on them in obtaining and holding such water rights. It may be possible to work out a cooperative agreement between the BLM and one of the State agencies authorized to acquire and hold an instream flow right, where the State agency has a similar interest in protecting a particular resource, such as a state-listed sensitive species of fish or wildlife.

Another Utah State law option relies on Utah's version of the public interest doctrine. Under this doctrine, the Utah State Engineer has authority to deny a water right application, even if there is unappropriated water available, if he is convinced that the water would serve a more beneficial purpose by remaining in the channel (Bonham v. Morgan, 788 P.2d 497 Utah 1989). This authority stems from the provisions of Utah Code 73-3-1 and 73-3-8. The Utah State Engineer has, on occasion, implemented this authority by use of a formal, declared policy statement, as he did to prevent appropriation or use of endangered fish protection flows released from Flaming Gorge Reservoir, as part of the recovery plan for the endangered Colorado River native fishes. The BLM, in appropriate circumstances, can approach the Utah State Engineer with a request to use this authority to protect natural flows in the Monument in a similar manner.

In addition to the above, the BLM now holds a number of water rights within the Monument in support of its existing grazing program under the Taylor Grazing Act and in support of wildlife. If in the future any of the grazing water rights are no longer needed, they might be converted to wildlife rights after an appropriate proceeding to change the water right in the Office of the State Engineer.

Federal Reserved Water Rights

The Grand Staircase-Escalante National Monument Proclamation does not reserve water as a matter of Federal law. It does not, however, abolish or defeat the BLM's claims to Federal-law-based water rights under other reservations or proclamations. These are discussed below.

Public Water Reserves

The Pickett Act of 1910 (repealed in 1976) vested the President with authority to withdraw and reserve certain public lands for public purposes (Act of June 25, 1910, ch. 421, 36 Stat. 847, as amended). Those purposes included preserving water resources on the public lands to serve the traveling public, including livestock. Courts have held that public water reserves do create Federal reserved water rights [see, e.g., U.S. v. Denver, 656 P. 2d1 (S. Ct. Col. 1982) and U.S. v. Idaho, No. 23587 (S. Ct. Ida., April 6, 1998)], but these courts generally regard these water rights as limited to human and animal consumption. The water reserved under Federal law by these reservations may contribute to the care and management of Monument resources. Used in conjunction with appropriate land management decisions they may be helpful.

Wild and Scenic Rivers

The nomination of a river through the planning process by itself creates no Federal reserved water right. The BLM has no authority of its own to designate a Wild and Scenic River and thereby create such rights. Only Congress, or the Secretary of the Interior upon application of the Utah Governor, may designate a Wild and Scenic River within the Monument. Such a designation would, under established legal doctrine, reserve sufficient water to carry out the purposes of the designation, including instream flows.

Congressional Reservation of Unappropriated Water

Congress may expressly reserve any unappropriated water within the Monument necessary to preserve Monument resources. Such a reservation would be subject to valid existing rights and would have a very junior priority date; the date of the reservation of the water, not of the Monument itself, because the Proclamation establishing the Monument expressly did not reserve water. This means that the Monument would continue to be subject to all water rights on the system senior to its own water right, but would be protected from adverse effects arising from subsequent appropriations.

Presidential Proclamation

A reserved water right may be created by Presidential Proclamation under the Antiquities Act [Cappaert v. United States, 426 U.S. 128, (1976)]. If Monument needs for water cannot be met by other means, the President could amend the original Proclamation specifically to include water for the purposes now identified by the BLM as necessary to protect Monument resources.

Assuring Water Quality

Section 303(d) of the Federal Clean Water Act addresses water bodies and courses that are not "fishable, or swimable." A 303(d) body of water is one that has been identified as possibly being in violation of State water quality standards. Section 303(d) requires each State to identify such waters and to develop total maximum daily loads (TMDL) for them, with oversight from the U.S. Environmental Protection Agency. The TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water. The following list shows 303(d) waters within the Monument and their associated load problems [Utah Department of Environmental Quality (UDEQ), Utah Division of Water Quality (UDWQ), *Utah's 1998 303(d) List of Waters, Table 1-b*]:

- Paria River (from Arizona State line to headwaters-tributaries -- total dissolved solids, sediment)
- Escalante River (from Lake Powell to Calf Creek -- total phosphorous, sediment)
- Escalante River (from confluence of Calf Creek to headwaters -- sediment)
- Calf Creek (confluence with Escalante River to headwaters -- temperature, total dissolved solids, sediment)

In any case, the BLM would request that the State of Utah accelerate development of TMDLs for 303(d) waters in the Monument.

The State of Utah is currently engaged in a more intensive water quality monitoring program. Moreover, the BLM is currently developing a water quality monitoring program at 60 sites within the Monument, in conjunction with the UDWQ, to ensure that State and Federal water quality standards would be met. In addition, the BLM would develop a comprehensive water quality monitoring program for protection of Monument resources and for visitor safety. The BLM would continue to work with UDEQ/UDWQ as water quality improvement programs and TMDLs are developed.

Water quality monitoring would be implemented when ground disturbance or other factors could adversely affect water quality. Mitigation would be required if adverse effects were detected.

AIR QUALITY

The existing air quality in and surrounding the Monument is typical of undeveloped regions in the western United States. Ambient pollutant levels are usually near or below the measurable limits. Exceptions include high, short-term localized concentrations of particulate matter (primarily wind blown dust or smoke from wildland fires), ozone, and carbon monoxide. Locations vulnerable to decreasing air quality include the immediate operation areas around mining and farm tilling, local population centers affected by residential emissions, and areas affected by long-range transport of pollutants.

The entire management area has been designated as either attainment or unclassified for all pollutants and has also been designated as Prevention of Significant Deterioration (PSD) Class II. Nearby PSD Class I areas include Capitol Reef, Canyonlands, and Arches National Parks to the east and north, Bryce Canyon and Zion National Parks to the west, and Grand Canyon National Park to the south.

The Monument would continue to be managed as a Prevention of Significant Deterioration Class II area designated by the Clean Air Act. The BLM's objective with regard to air quality would be to ensure that authorizations granted to use public lands and that the BLM's own management programs would comply with and support local, State, and Federal laws, regulations, and implementation plans pertaining to air quality. All BLM actions and use authorizations would be designed or stipulated so as to protect air quality within the Monument and the Class I areas on surrounding Federal lands.

Site specific project proposals affecting BLM and adjacent lands would be reviewed for compliance with existing laws and policies protecting the areas. Mitigation would be incorporated into project proposals to reduce air quality degradation. Projects would be designed to minimize further degradation of existing air quality. New emission sources would be required to apply control measures to reduce emissions.

Management ignited fires must comply with the State of Utah Interagency Memorandum of Understanding requirements to minimize air quality impacts from resulting particulates (smoke). This procedure requires obtaining an open burning permit from the State prior to conducting a management ignited fire.

ZONE MANAGEMENT DIRECTION

ZONE DESCRIPTIONS

Management zones are used in this Plan to display various management emphases, and are delineated by geographic area (Map 2.1 - in the envelop at the back of this document). These zones provide guidance to help define permitted activities and any stipulations pertaining to them, as well as any excluded activities. In this context, zones are tools that guide decision making on permitting visitor uses and other activities within the Monument.

The preferred alternative in the DEIS put forward a set of four management zones designed to manage visitation and direct economic opportunities to the adjacent communities. In the development of the zones, the Planning Team performed a "conflict analysis" to determine if activities allowed within a certain zone would conflict with any sensitive resources within the zone. This analysis was used to draw zone boundaries so that higher use areas would avoid sensitive resources, especially where the impacts to the sensitive resource could not be avoided through other stipulations on use. These zones were further refined after consideration of public comment on the DEIS, direction from managers, and the application of the criteria described below. The zone boundaries portrayed on Map 2.1 may not exactly correspond to the on the ground geographic features. These differences are minor and do not change the intent of the zone management prescriptions.

The **Frontcountry Zone** (78,056 acres or 4 percent of the Monument) is intended to be the focal point for visitation by providing day-use opportunities in close proximity to adjacent communities and to Highways 12 and 89 which traverse the Monument. This zone would accommodate the primary interpretation sites, overlooks, trails, and associated facilities necessary to feature Monument resources. The zone boundaries were developed by locating a corridor along Highways 12 and 89, Johnson Canyon Road, and the portion of Cottonwood Canyon Road leading to Grosvenor Arch. The zone was then expanded or constricted to coincide with the dominant terrain features which would provide identifiable boundaries on the ground. Existing destinations such as

Grosvenor Arch, the Pahreah townsite, and the Calf Creek Recreation Area were included in order to provide for necessary improvements and to accommodate expected visitation. Lands close to Escalante were also included, due to extensive visitor use. In delineating this zone, Wilderness Study Areas (WSAs), threatened and endangered species habitat, relict plant areas, and other sensitive species were avoided whenever possible. Highway 89, from the western boundary to The Cockscomb, lacks dominant terrain to delineate this zone. For this reason, a one-mile buffer along each side of the highway was used.

The **Passage Zone** (38,316 acres or 2 percent of the Monument) includes secondary travel routes which receive considerable use as throughways and recreation destinations. The condition of the routes and distance from communities led the Planning Team to avoid directing or encouraging visitation, while at the same time allowing rudimentary facilities necessary to protect resources, educate visitors about Monument resources, or for public safety. The primary criterion for developing the zone boundaries was again dominant terrain. The boundary does not constrict closer than 100 feet to the routes, and encompasses most obvious imprints of human activities such as trailheads, transmission rights-of-way, and potential resource interpretation sites within ½ mile of the subject route. In many cases, dominant terrain was not available along route segments. In these cases, a 660 foot (1/8 mile) buffer was used. Again, WSAs, threatened and endangered species habitat, relict plant areas, and other sensitive resources were avoided whenever possible. In addition, riparian areas were also avoided.

The **Outback Zone** (537,662 acres or 29 percent of the Monument) is intended to provide an undeveloped, primitive and self-directed visitor experience while accommodating motorized and mechanized access on designated routes. Facilities would be rare and provided only when essential for resource protection. This zone encompasses existing seedings, land treatments, and other known disturbed sites. The remaining public routes not in the Frontcountry or Passage Zones would be included in the Outback Zone. Dominant terrain was again the primary criterion for the zone boundary. The boundary does not constrict closer than 100 feet to the routes. WSAs were avoided wherever possible (see the **Wilderness Study Area** section of this chapter for a discussion of zone boundaries and WSA considerations).

The **Primitive Zone** (1,211,386 acres or 65 percent of the Monument) is intended to provide an undeveloped, primitive and self-directed visitor experience without motorized or mechanized access. Some administrative routes are included in this zone, which could allow very limited motorized access. Facilities would be non-existent, except for limited signs for resource protection or public safety. The zone is intended to facilitate landscape-scale research and therefore connects each of the three major landscapes (Escalante Canyons, Kaiparowits Plateau, and Grand Staircase), as well as linking low elevation areas to higher elevations. This zone is also intended to connect primitive and undeveloped areas on surrounding lands managed by other Federal agencies.

CAMPING

Camping in developed campgrounds or in designated primitive camping areas would be allowed in the Frontcountry and Passage Zones. Dispersed primitive camping would not be allowed in these zones. Dispersed primitive camping would be allowed in the Outback and Primitive Zones, but primitive camping could be limited to certain designated areas in these zones if resource damage occurs. Permits would be required for overnight use in all zones. Designated primitive camping areas are places where the BLM has identified and designated areas for camping use. These areas would not have any developments, other than a small sign or barriers to delineate the site.

Except in WSAs, threatened and endangered plant areas, relict plant areas, riparian areas, or other areas identified for resource protection, motorized or mechanized vehicles could pull off of designated routes no more than 50 feet for direct access to dispersed camping areas in the Outback Zone. Visitors would be encouraged to use existing disturbed areas for pulling off of routes to access camping areas and are required to leave existing vegetation intact. In the Frontcountry and Passage Zones, vehicles would be confined to using designated pullouts and would not be allowed to pull off of the route.

Campfires would not be allowed in the Escalante and Paria/Hackberry Canyons, No Mans Mesa, and other relict plant areas as they are identified. Campfires would also be prohibited in archaeological sites, rock shelters, or alcoves Monument-wide. Fires would be allowed only in designated fire grates, designated fire pits, or mandatory fire pans in the Frontcountry and Passage Zones, and wood collection for campfires would not be permitted. In the Outback and Primitive Zones, fire pans would be encouraged and dead and down wood could be collected in areas where campfires are allowed.

CLIMBING

Climbing would not be allowed in archaeological sites, on natural bridges or arches, or within identified threatened and endangered species nesting areas. Climbing areas may be seasonally closed to assure that disturbance to raptor nesting activities does not occur. The BLM would work with the public to identify climbing areas and develop specific management plans for them. Climbing would be subject to zone and other specific management restrictions.

COMMERCIAL FILMING

Minimum-impact filming would be allowed in all zones if the activity complies with the zone requirements. Permits for commercial filming would include the following "minimum-impact filming" requirements and may require preparation of a project-level NEPA document (BLM Manual 2920). Filming may not:

- impact sensitive habitat or species
- impact archaeological sites
- involve use of explosives or major use of pyrotechnics
- involve more than minimum impacts to land, air, or water
- involve use of exotic plant or animal species with danger of introduction into the area
- involve adverse impacts to sensitive resources including cultural or paleontological sites, sensitive soils, relict environments, wetlands or riparian areas
- involve use of heavy equipment
- involve use of vehicles off of routes
- involve set construction
- involve significant restriction of public access
- involve significant use of domestic livestock
- involve aircraft taking off, landing, or flying less than 1,000 feet above the site
- involve 15 or more production vehicles, or 75 or more people, or exceed group size limitations
- continue in excess of 10 days.

COMPETITITIVE AND SPECIAL EVENTS

No competitive events would be allowed. Special events may be approved, under permit, if the event meets other zone requirements. Events would be permitted in accordance with the requirements of the most restrictive zone that the event encounters.

FACILITIES

Visitor Facilities in the Gateway Communities

Development of visitor use facilities would be focused on the periphery of the Monument and within the communities. This would protect Monument resources, while providing economic opportunities in the communities surrounding the Monument.

Major facilities and the services associated with them would be located outside the Monument in nearby communities. These include a Monument headquarters in Kanab, an Interagency Office in Escalante, and visitor contact stations in Cannonville, Glendale, and Big Water. Their precise locations would be based on factors such as the availability of infrastructure; economic considerations, including market feasibility; the availability of financing; and managerial concerns. These determinations would be made by the communities and the BLM. Any construction activities associated with these sites are contingent upon funding by Congress. Monument staff would also be available at the Paria Contact Station and at the Anasazi State Park in Boulder. Within the Monument, visitor facilities would vary by zone, but in all zones, developed facilities would be limited as discussed below.

Visitor Facilities in the Monument

All facilities and signs would be consistent with the Monument Interpretive Plan, the Monument Facilities Master Plan, and the Monument Architectural and Landscape Theme, all in the process of development. The Monument Facilities Master Plan would address and be consistent with the Americans with Disabilities Act of 1973, the Rehabilitation Act of 1973, and the Architectural Barriers Act of 1968. All projects causing surface disturbance would be subject to NEPA analysis and the standard stipulations described in Appendix 4.

No projects or activities that would result in permanent fills or diversions in, or placement of permanent facilities on special flood hazard areas (as designated by the Federal Emergency Management Agency), would occur within the Monument. All facilities and parking areas would be designed to be unobtrusive and to meet the visual resource objectives discussed in the **Visual Resource Management** section of this chapter.

The provision of water at sites within the Monument would be very limited because the only facilities provided would be modest pullouts, parking areas, trailheads, picnic sites, toilets, and primitive camping areas. These sites do not require water, including most toilets which could use other technologies. Nonetheless, water may be provided in limited circumstances, where necessary for visitor safety or resource protection, in the Frontcountry or Passage Zones.

Frontcountry Zone: As the focal point for visitation, visitor day-use facilities and signs would be encouraged as necessary and adequate for visitor use, safety and the protection of sensitive resources, in addition to existing facilities. These facilities could include pullouts, parking areas, trailheads, trails, toilets, fences, and picnic areas. Day-use areas could include vault toilets, picnic tables, interpretive kiosks, and in some cases, interpretive trails which would be universally accessible, but not paved. Most day-use parking areas would be paved, but those off of unpaved roads, such as Grosvenor Arch and the Paria Movie Set, would remain unpaved. Most parking areas would be small, accommodating 10 to 20 cars. Construction of small spur routes or trails may be allowed to access parking areas or other facilities.

Scenic overlooks and other sites that have been developed along Highway 12 would be maintained. Some of the parking areas would be better delineated with barriers or fences to prevent further expansion. Additional wayside exhibits may be developed for some of the existing sites to stimulate further learning and protect resources. The BLM would look for appropriate opportunities to highlight Monument resources for along Highways 12 and 89, and around the communities of Boulder, Escalante, Henrieville, Cannonville, Tropic, Church Wells, and Big Water. The Monument staff would work with communities, visitors, and other interested publics to develop sites. Up to 15 of these sites could be developed in the Frontcountry Zone, and specific projects would go through the NEPA process with full public involvement.

Calf Creek and Whitehouse Campgrounds are the only developed campgrounds in the Frontcountry Zone. Dispersed primitive camping would not be allowed, although up to 10 designated primitive camping areas (without amenities) may be identified for individuals or groups. Most of these would be designated in areas already used for camping. These areas could accommodate 2-5 vehicles with a few areas large enough for group camping. Camping areas would be designated with a small sign and barriers. Toilets, water, tables or other amenities would not be provided at these sites.

Passage Zone: The condition of routes and distance from communities in the Passage Zone makes it a secondary zone for visitation where facilities may occur, but visitation would not necessarily be directed or encouraged. Similar facilities as allowed in the Frontcountry Zone could be provided for resource protection, visitor safety, or for the interpretation of Monument resources. Most of the existing trailheads are located in this zone. Deer Creek Campground is also in this zone. Information kiosks approximately the size of two 3 foot by 5 foot panels would be located at major trailheads (e.g., The Gulch, Deer Creek, and Dry Fork), and smaller kiosks or signs would be located at less used trailheads. Rarely used trailheads would be identified with a small sign.

Most of the existing parking areas would be better delineated with barriers to prevent further expansion. Parking areas could accommodate up to 30 vehicles, but most would be designed for fewer than 10 cars. Construction of small spur routes or trails may be allowed to access parking areas or other facilities. Trails and parking areas would not be paved.

Existing destinations such as Devils Garden and Dance Hall Rock would be maintained. A better delineated parking area and toilets could be considered for Dance Hall Rock. A fully accessible trail that blends in with the terrain could be considered for Devils Garden.

Up to 17 parking areas or pullouts (scenic overlooks) could be designated in this zone. These are generally areas that are already used for parking, and delineating them with natural barriers or fences would prevent further resource damage. Interpretive kiosks or signs could be provided at these sites as discussed above.

The existing Deer Creek Campground would be the only developed campground in this zone. Dispersed primitive camping would not be allowed, although up to 25 designated primitive camping sites may be identified for individuals or groups. Most of these would be designated in areas already used for camping. These areas could accommodate 2-5 vehicles with a few camping areas large enough for groups. Camping areas would be designated with a small sign and barriers. Toilets, water, tables or other amenities would not be provided.

Outback Zone: In this zone small signs to educate the public about a particular resource or safety hazard may be installed at limited sites, but these sites would not be promoted in literature. Facilities such as designated parking areas, toilets, or fences could be allowed for protection of resources in limited cases, only where other tools to protect resources could not be used. Trails could be delineated if necessary to prevent widespread impacts from multiple trails. Dispersed primitive camping would be allowed in this zone, but certain areas could be closed and certain areas could be designated for camping (similar to the designated camping areas described for the Passage Zone) if resource damage is occurring.

Primitive Zone: In this zone, limited signs could be allowed for resource protection or public safety. Small directional signs may be needed, but these would be kept to an absolute minimum and would be rare. Trails could be delineated only if necessary to prevent widespread impacts from multiple trails. No water, toilets, or other visitor amenities or facilities would be provided. Dispersed primitive camping would be allowed in this zone, but certain areas could be closed and certain areas could be designated for camping (similar to the designated camping areas described for the Passage Zone) if resource damage is occurring.

GROUP SIZE

There would be no limit on group size in the Frontcountry Zone. Group size would be limited to 25 people in the Passage and Outback Zones. Permits for groups over 25 people would be considered in the Passage and Outback Zones, if the number of people and the activities proposed are consistent with the protection of Monument resources. Appropriate NEPA analysis would be prepared on areas where permits could be authorized. These permits would require that adequate sanitation and trash collection are provided, and that activities take place in areas where resources would not be damaged. In the Primitive Zone, group size would be limited to 12 people and 12 pack animals. Within the Paria River corridor in the Primitive Zone, permits could be approved for groups over 12 people up to a maximum of 25 people.

In order to protect Monument resources, it is possible that it would become necessary to place limits on the overall numbers of people and/or pack animals allowed, or to further restrict group sizes in areas where resource damage is occurring. See the **Recreation Allocation** section in this chapter for further discussion of limits on overall numbers of people.

OUTFITTER AND GUIDE OPERATIONS

Outfitter and guide operations would be allowed throughout the Monument in compliance with the constraints of the zone and allocation and use limits. Training would be provided on an annual basis to keep outfitters and guides current on appropriate research studies occurring in the Monument. Outfitters and guides would be strongly encouraged to incorporate interpretive/educational components into their trips.

RECREATION ALLOCATIONS

The Monument would use the following indicators to determine when and where visitor allocations need to be made: (1) resource damage (e.g., proliferation of campsites, human waste problems, social trailing or vandalism to historical, archaeological, paleontological sites, or destruction of biological soil crusts), (2) conflicts with threatened and endangered plant or animal species, and/or (3) the number of social encounters become unacceptable.

Rapid site backcountry inventories are currently underway to determine where and how many backcountry camping areas are in the Primitive Zone. The BLM plans to begin another inventory during the summer of 1999 to determine where and how many backcountry camping areas are located along transportation routes within the Monument. The rapid site inventories provide information that could be used in determining allocations including whether camping areas, human waste, social trails, archaeological sites, paleontological sites, plant damage, cattle or signs of cattle are present or absent. Inventories of threatened and endangered species would also be used to determine allocations. Finally, a backcountry visitor use survey would be utilized to help determine a baseline tolerance for social encounters in known popular primitive areas.

These inventories, surveys, and studies would establish a baseline to set up an ongoing monitoring program and prioritize areas that require more restrictive management. This would be done as part of the adaptive management framework (Appendix 3) with consultation from the GSENM Advisory Committee. When it is determined that critical indicators have been approached or exceeded, the Monument would go through a public process to determine allocations for specific areas. Total numbers of people and group size would be considered. The BLM would consult with Glen Canyon National Recreation Area and the Escalante Ranger District of Dixie National Forest if allocation is determined necessary for the Escalante Canyons.

The Monument would work closely with the UDWR throughout the public process as they administer and regulate hunting, fishing and the permits issued for these activities.

Frontcountry: This zone would be the focal point for visitation. There would be no allocation in this zone other than directing individuals to selected sites chosen for their interpretive values.

Passage: Allocation is possible for the protection of sensitive resources or visitor experience. The most likely places that allocation would occur is at trailheads in order to limit the number of people accessing the primitive areas.

Outback: Allocation is moderately likely for the protection of sensitive resources or visitor experience. The first step would be designating primitive camping areas. Limiting the number of people in specific areas could also be used after other measures were taken.

Primitive: Allocation is highly likely for the protection of sensitive resources or visitor experience. Based on current visitor use and the inventories and studies listed above, it is anticipated that allocations could be needed for the Escalante Canyons, Fiftymile Mountain, and Hackberry Canyon as soon as 2001. Additional areas meeting the criteria would also be considered.

In developing allocation plans for areas, efforts would be made to coordinate with other resource planning efforts (e.g., research, grazing allotment management plans), as discussed in the **Implementation and Adaptive Management Framework** in Appendix 3. This type of integrated activity planning would lead to more comprehensive planning efforts for specific areas and to better decision making.

RECREATIONAL STOCK USE

Horses or other pack animals would not be allowed in relict plant communities, archaeological sites, rock shelters, or alcoves. Sheep species would not be allowed for pack use Monument-wide. Recreational stock are limited to 12 animals in the Primitive Zone. The BLM requires that all hay used on BLM lands be certified weed free.

TRANSPORTATION AND ACCESS

Public Access

The unregulated use of off-highway vehicles (OHV), also called all-terrain vehicles (ATV), including snowmobiles, off of designated routes has the potential to damage Monument resources and cause recreation conflicts. Cross-country vehicle travel can damage Monument objects associated with these resources which are sensitive to surface disturbance. Resources sensitive to this disturbance include archaeological, paleontological, geological, historic, biological soil crusts, special status plant and animal species, vegetation, and wildlife. Additionally, OHV tracks can become ruts. These ruts concentrate water flows, altering water quality and quantity and creating erosion. Some wildlife and special status wildlife species are sensitive to the presence of OHVs and may leave calving and fawning areas, roosts and nests, or other critical habitat. Likewise, OHVs conflict with primitive recreation experiences by introducing the sights and sounds of civilization. For these reasons, cross-country motorized travel would be prohibited in accordance with 43 CFR 8340 Off-Road Vehicle regulations. Use on designated routes is provided however. To this end, OHV designations in the Monument would be either "closed" (in the Primitive Zone) or "limited to designated routes" (in the Frontcountry, Passage, and Outback Zones) (Map 2.1). These designations are consistent with standard BLM designations provided for in BLM Manual 8340. As discussed in the **Camping and Forestry Products** sections in this chapter, vehicles may pull off of routes no more than 50 feet for parking and camping in the Outback Zone, except where prohibited. No off-highway vehicle (OHV/ATV) play areas would be designated in the Monument.

Bicycle use (including mountain bikes and road bikes) was also carefully considered as part of the overall transportation system. Impacts from bicycles may be lower than OHVs due to ability of OHVs to travel over greater distances in a short period of time. Use areas may also differ due to different ground surface requirements (e.g., sand often discourages mountain bike use, while it can be desired by OHV users). However, impacts from the use of OHVs and bicycles are similar. Mountain bike travel can cause damage to resources sensitive to surface disturbance, particularly biological soil crusts, special status plant species, and other vegetation. Additionally, bicycle tracks can also become ruts. These ruts, like those of OHVs, can concentrate water flows, altering water quality and quantity and creating erosion. Therefore, use of bicycles is also limited to designated routes and cross-country travel is not allowed.

This Plan would designate the route system for the Monument, subject to valid existing rights.[1] Although the BLM had not originally planned to make access decisions in the Monument Management Plan, the agency was persuaded, as a result of widespread requests in the scoping process and further examination, that proper management of the Monument would be enhanced by making decisions on access and transportation routes in the Plan. The transportation map (Map 2.1) shows routes that would be open for public use and those available for administrative use only (see the **Administrative Routes and Authorized Users** section in this chapter for further discussion). The specific routes shown open for public use are based on a variety of considerations including what is needed to protect Monument resources, implement the planning decisions, and provide for the transportation needs of surrounding communities. The basic philosophy in determining which routes would be open was to determine which routes access some destination (e.g., scenic overlook, popular camping site, heavily used thoroughfare) and present no significant threat to Monument resources. These routes would be open for public use. Routes that were not considered necessary or desirable (for resource protection purposes) would not be kept open for public access. The DEIS presented a range of transportation alternatives, and public comments on those transportation options were considered in crafting this transportation plan. As part of developing an access system for this Plan, the BLM sought to reach an agreement with Kane and Garfield Counties resolving the many issues surrounding rights-of-way and access in the Monument. At the time this Plan was sent to the printer, negotiations had not reached a conclusion. Comments from the Counties were considered in this Plan, however.

Street legal motorized vehicles, including four-wheel-drive and mechanized vehicles (including bicycles), would be allowed on 888 miles of routes designated open in the Frontcountry, Passage, and Outback Zones (Map 2.1). In order to display all open routes, this mileage number includes sections of Highways 12 and 89 within the Monument, even though they are not administered by the BLM. No routes would be designated open in the Primitive Zone.

Non-street legal all-terrain vehicles (ATVs) and dirt bikes would be restricted to those routes designated as open for their use. Non-street legal ATVs and dirt bikes would be allowed on 543 miles of the 888 miles of routes designated open to street legal vehicles in the Frontcountry, Passage, and Outback Zones; no routes would be designated open to them in the Primitive Zone. All zones would allow hikers, horses, and pack animals, except where noted elsewhere to protect resources.

Maintenance

With the exception of those segments listed below, open routes could be maintained within the current disturbed areas; no widening, passing lanes, or other travel surface upgrades could occur. Deviations from the current maintenance levels would be allowed as follows (subject to Wilderness Study Area Interim Management Policy, BLM Manual H-3550-1):

- Hole-in-the-Rock Road: Allow stabilization of washout prone areas, primarily along the southeastern end, to prevent erosion and sediment loading in drainages.
- Smoky Mountain Road: Allow stabilization in the Alvey Wash section to prevent erosion and sediment loading in drainages.
- Cottonwood Wash Road: Allow stabilization of washout prone areas, primarily along the southern section, to prevent erosion and sediment loading in drainages.
- Skutumpah Road: Allow new crossing for safety at Bull Valley Gorge, and stabilization of washout prone areas, primarily along the northern section, to prevent erosion and sediment loading in drainages.

In the event that Title 5 rights-of-way are issued pursuant to negotiations with Kane and Garfield Counties, or in the event of legal decisions on RS 2477 assertions, maintenance activities would be governed under the terms of those actions.

The BLM would continue to work with the Utah Department of Transportation (UDOT) concerning route maintenance for Highways 12 and 89. This would cover maintenance and safety work activities. Any new ground disturbance would require site-specific environmental analysis.

Trails

In the Frontcountry Zone, a full range of trails could be developed and maintained in order to provide opportunities for visitors. The BLM would work with UDOT to explore the possibility of developing bicycle lanes or parallel bicycle routes along Highways 12 and 89. In the Passage Zone, trails could be developed and maintained where needed for protection of Monument resources or for public safety. Elsewhere, trails could only be developed or maintained where necessary to protect Monument resources.

The Great Western Trail is proposed to traverse the Monument in the Grand Staircase section. The BLM is currently working with adjacent agencies to select an appropriate route through the Monument that is consistent with the objectives in this Plan. The route currently identified would be on existing routes designated open to ATVs in this Plan. This process may require further NEPA analysis.

Administrative Routes and Authorized Users

The BLM would be responsible for administrative routes which would be limited to authorized users. These are existing routes that lead to developments which have an administrative purpose, where the BLM or some permitted user must have access for regular maintenance or operation. These authorized developments include such things as powerlines, cabins, weather stations, communication sites, spring developments, corrals, and water troughs. Routes designated open for certain administrative purposes (192 miles) are shown on Map 2.1. Access would be strictly limited and would only be granted for legitimate and specific purposes. Maintenance would be the minimum required to keep the routes open for limited use by high clearance vehicles. If the administrative purpose were to cease, the route would be evaluated for closure following public notification and opportunity to comment. Authorized users could include grazing permittees, researchers, State or Federal agencies, Native American Indians accessing recognized traditional cultural properties, and others carrying out authorized activities under a permit or other authorization.

Beyond the routes shown on Map 2.1, the BLM would work with any individual operating within the Monument under existing permits or authorizations to document where access must continue in order to allow operation of a current permit or authorization. Routes that go only to BLM range monitoring and study areas would not be maintained, but periodic vehicular access to these sites would be granted for required range monitoring uses.

Road Restoration Strategy

The BLM's strategy for closing routes that would no longer be available for public or administrative use in the Monument would be phased over a period of years. This would be accomplished as rapidly as funding permits. It is anticipated that this could take as many as ten years. Each year, a percentage of the Monument's base budget would be used to close routes in areas that are easily accessible to the public and that involve sensitive resources in immediate danger of being degraded. Generally, routes in the Frontcountry and Passage Zones would be closed first. However, there may be routes in the Outback and Primitive Zones that would be considered on a case-by-case basis.

As soon as this Plan is formally approved, these routes would be considered closed. The proposal for restoration would include:

- not repairing washed out routes
- natural barriers, such as large boulders
- dead and down wood to obscure route entry ways
- fences
- ripping up the route bed and reseeding with vegetation natural to that area
- replacing gates with a fence if area has a fence in place
- visitor education and information

Each route would be looked at individually, and the best, least intrusive method would be used based on the geography, topography, soils, hydrology, and vegetation. The first several hundred feet of select routes identified for closure could be left open to provide pull-out areas or camping opportunities, preventing new ground disturbance elsewhere.

Enforcement

The BLM's strategy to keep vehicles on designated travelways would be to hire additional staff including law enforcement personnel to patrol by foot, horse, and vehicle. The BLM would be proactive in educating the public about routes that are open with maps and signs. The information would be on the Monument website, at the visitor centers/contact stations, and sent to the media. The BLM is pursuing cooperative agreements with the Sheriff departments in Kane and Garfield Counties to facilitate shared law enforcement and support for enforcing established closures. The BLM would continue to work with the counties, the State, the communities, and others to communicate correct information to the visiting public and residents. An extensive volunteer program that would assist in educating visitors about the Monument would also be developed.

Monument staff would be scheduled to patrol on a regular basis throughout the year. Additional patrols would be added for intense use periods.

Aircraft Operations

Congress has delegated monitoring and control of the National Airspace System to the Federal Aviation Administration (FAA). At the present time, airspace over the Monument is subject to numerous aviation regulations designed to establish a safe operating environment for all aircraft.

The Department of Defense operates two Military Training Routes across the Monument. These routes (IR-126 and IR-266) include both fighter aircraft and heavy bombers. Their operating altitudes can vary from the surface, using terrain-following radar, up to 9000 feet Mean Sea Level. The route width varies from 2 to 4 miles on either side of the centerline. These routes have been in use for many years, and are active year-round. They were established in part because of the lack of human settlement in the region. The existence of these military training routes would be included in visitor information materials, which would tell visitors in the affected areas to expect military aircraft operations. The BLM intends to work cooperatively with the Department of Defense to ensure that military training routes are appropriate to Monument management.

A number of air tour operators are located in close proximity to the Monument in locations such as Bryce Canyon, Kanab, St. George, Page, and Las Vegas. These operators charter tours over the Monument upon request. The BLM would work cooperatively with aircraft operators, adjacent land managing agencies, and the FAA to direct overflights to appropriate management zones.

The only active airstrip inside the Monument is the New Home Bench airstrip near Boulder, which is located partially on U.S. Forest Service and partially on BLM lands. The BLM is cooperating with the U.S. Forest Service in the issuance of a Special Use Permit for operation of the airstrip. In order to protect Monument resources, aircraft takeoff and landings would be allowed only at the New Home Bench airstrip.

A number of entities holding rights-of-way or permits, State agencies, and the BLM use aircraft for patrolling, monitoring, maintenance, and repair functions. Necessary aircraft operations for rights-of-way holders, permittees, and other agencies would be documented in the appropriate permit, authorization or a Memorandum of Agreement. Landing of aircraft for these purposes would be limited to the minimum necessary to meet the required maintenance or repair function.

Due to the remote and undeveloped character of the Monument, natural ambient sound is considered by the public to be an extremely important component of the resource and the visitor experience. Studies on the effects of noise utilizing both visitor surveys and sound measuring instruments would be completed to determine what the noise baseline is for various areas within the Monument. Studies would be coordinated for areas that border adjacent National Parks.

UTILITY RIGHTS-OF-WAY AND COMMUNICATION SITES

Monument managers are committed to working with nearby communities and other land management agencies to pursue management activities which cooperatively accomplish the objectives of each agency within the constraints of Federal law. The BLM would work in cooperation with local communities and utility providers to identify short and long-term community needs for infrastructure which could affect Monument lands and resources. Community projects which require public lands access or use would be subject to necessary project level NEPA analysis. The BLM would work with the sponsor of a project to meet Monument Plan objectives for protecting resources. Alternative locations for projects would be identified when unavoidable conflicts arise. In order to protect Monument resources, such projects would be focused in appropriate zones as discussed below.

In general, proposals for diverting water out of the Monument would not be permitted as discussed previously in this chapter in the Water section. However, exceptions could be considered for local community culinary needs if the applicant could demonstrate that the diversion of water would not damage Monument resources or conflict with the objectives in the Approved Monument Management Plan.

BEST COPY AVAILABLE

In the Frontcountry and Passage Zones, communication sites and utility rights-of-way would be allowed, but would have to meet visual resource objectives described in the **Visual Resource Management** section of this chapter. In the Outback Zone, communication sites and utility rights-of-way would be allowed within the constraints of the zone, where no other reasonable location exists, and would meet the visual objectives described in the **Visual Resource Management** section of this chapter. In the Primitive Zone, utility rights-of-way would not be permitted. In cases of extreme [illegible] for local (not regional) needs and where [illegible] alternatives are not available, a plan amen[illegible]ould be considered for these facilities i[illegible]e Primitive Zone. Communication sites would only be allowed in the Primitive Zone for safety purposes and where no other alternative exists.

Rights-of-Way

The following criteria apply to the management of all rights-of-way in the Monument where they are allowed:

1. Bury new and reconstructed utility lines (including powerlines up to 34.5 kilovolts) unless: visual quality objectives can be met without burying; geologic conditions make burying infeasible; or burying would produce greater long-term site disturbance.
2. All reconstructed and future powerlines must meet non-electrocution standards for raptors. If problems with existing powerlines occur, corrective measures would be taken.
3. Construct all powerlines using non-reflective wire. Steel towers would be constructed using galvanized steel. Powerlines would not be high-lined unless no other location exists.
4. Strobe lights would not be allowed at any communication site. Other methods would be used to meet aircraft safety requirements.
5. Communication site plans would be prepared for all existing sites before any new uses or changes in use occur.
6. A Monument-wide feasibility study would be prepared to determine the most appropriate location(s) for new communication sites.

There are two utility line projects proposed in the Monument at this time; the upgrade of PacifiCorp's Cottonwood Canyon powerline from 230-kilovolts to 345-kilovolts, and the Lake Powell to Sand Hollow Reservoir water pipeline. In December of 1975, Utah Power and Light (a subsidiary of PacifiCorp) filed an application to increase the voltage in their Cottonwood Canyon powerline from 245-kilovolts to 345-kilovolts. The proposal was to raise the cross arms 5 feet on the existing wood towers, add three insulators to each conductor, bundle the conductors, and add one X-brace to each existing tower for increased support. At the request of the applicant, this project was put on hold.

No application has formally been filed for the Lake Powell to Sand Hollow water pipeline. However, the tentative route would follow Highway 89 for most of its length. Per Public Law 105-355, signed by President Clinton on October 31, 1998, a utility corridor was designated along Highway 89 in Kane County, including that portion of Highway 89 within the Monument. The utility corridor extends 240 feet north from the center line of the highway, and 500 feet south from the center line of the highway. Location of the proposed water pipeline within this utility corridor is a possibility.

In any case, subsequent environmental analysis would be required on both the powerline upgrade proposal, and the water pipeline proposal. A determination as to their conformance with the Approved Plan would be required.

In general, the BLM would authorize only one access route to private land parcels unless public safety or local ordinances warrant additional routes. Private land owners would be required to coordinate the development of access routes across public lands in order to prevent a proliferation of routes. Rights-of-way may be allowed when necessary to exercise valid existing rights.

VENDING

Vending within the Monument would be occasional, infrequent, and could be allowed by permit only on a case-by-case basis in the

BEST COPY AVAILABLE

Frontcountry and Passage Zones, in association with approved special events or recreation sites. Generally, permits could be issued to provide services needed at recreation sites (such as firewood sales at campgrounds) and services that are commonly offered in conjunction with permitted special events. Criteria to protect Monument resources would be included in all permits. Concessionaire sales and on-going vending permits are not included in this provision, except where contracts between concessionaires and the Monument are used to provide services to visitors in the Frontcountry and Passage Zones. Vending would not be allowed in the Outback or Primitive Zones.

The BLM would work with UDOT to regulate vendors along Highways 12 and 89.

MANAGEMENT ACROSS ZONES

COLLECTIONS

In order to carry out the intent of the Proclamation to protect historic and scientific objects, collection of Monument resources, objects, rocks, petrified wood, fossils, plants, parts of plants, animals, fish, insects or other invertebrate animals, bones, waste, or other products from animals, or of other items from within the Monument would be prohibited. Exceptions could include: collections authorized by permit in conjunction with authorized research or management activities; the collection of small amounts of fruits, nuts, and berries for personal, non-commercial use; the collection of certain natural materials by Native American Indians under BLM permit; the collection of antlers or horns as provided for by UDWR regulations; and the collection of dead and down wood for immediate use in campfires, where campfires are allowed.

The above prohibitions shall not be deemed to diminish the responsibility and authority of the State of Utah for management of fish and wildlife, including the regulation of hunting and fishing, on Federal lands within the Monument.

EMERGENCY AND MANAGEMENT EXCEPTIONS

As discussed in the **Transportation and Access** section of this chapter, motorized and mechanized vehicles are generally limited to designated routes, except as provided for in the **Camping** and **Forestry Products** sections of this chapter. In emergency circumstances, however, vehicles may pull immediately off of designated routes.

In addition, limited exceptions to the general management provisions may be granted by the Monument Manager. These exceptions could allow off-highway vehicle use, aircraft landing, motorized or mechanized access on closed routes, or use of mechanized equipment in closed areas. Exceptions would be made in emergencies, or where clearly essential to serve Monument management purposes. Exceptions could be made in cases such as carrying out search and rescue operations, fire prevention and control, and other uses where justified. Certain authorized users could be given motorized access not given to the general public for specific, authorized uses as described in the **Administrative Routes and Authorized Users** section in this chapter.

FEES

The Monument has been approved to develop a fee demonstration program. Public input would be sought prior to the design and implementation of any fee system. Existing use fees would continue to be charged.

FENCES

Fences would be used in certain circumstances to protect Monument resources, to manage visitor use, and to manage livestock, consistent with the Proclamation. They would be designed and constructed in accordance with visual resource management objectives and the Monument Facilities Master Plan (see the **Visual Resource Management** section of this chapter for further discussion).

IMPLEMENTATION AND ADAPTIVE MANAGEMENT FRAMEWORK

While this Plan contains general direction and context for the entire Monument and makes decisions on specific actions for some issues (e.g., access restrictions), many management actions necessary to achieve broad-scale objectives (e.g., achieving a natural range of native vegetation associations) may require

BEST COPY AVAILABLE

6

further analysis and additional planning. The **Implementation and Adaptive Management Framework** outlined in Appendix 3 describes the expected types and levels of analysis and planning that would "step-down" broad-scale information and decisions in this Plan to site-specific actions. Appendix 3 also provides a framework for developing a specific monitoring and evaluation program which would measure the conditions and trends in the Monument. The information developed through the monitoring process would be used to assess management strategies and then alter decisions, change implementation, or maintain current management direction as appropriate.

LIVESTOCK GRAZING

The Presidential Proclamation establishing the Monument addressed livestock grazing with the following statement: "Nothing in this proclamation shall be deemed to affect existing permits or leases for, or levels of, livestock grazing on Federal lands within the monument: existing grazing uses shall continue to be governed by applicable laws and regulations other than this proclamation."

There is a substantial body of law and regulation governing grazing on public lands. In addition, the Utah State Director for the BLM has developed Standards for Rangeland Health and Guidelines for Grazing Management which were approved by the Secretary of the Interior on May 20, 1997 (Appendix 5). The Utah Standards and Guidelines apply to grazing management statewide, including those lands within the Monument.

This section describes how grazing uses within the Monument shall be managed, in keeping with applicable laws and regulations, and with the statewide Standards and Guidelines. It describes a process for grazing management and a schedule for completion of this process Monument-wide.

Applicable Statutes and Regulations

The management of grazing on public lands in the United Sates began in 1934 with the passage of the Taylor Grazing Act (TGA), which established a strategy for grazing management. This strategy was amended in 1976 when Congress enacted FLPMA, which made fundamental changes to the management of public lands overall, including grazing management.

Under FLPMA, public lands are to be managed under the principles of multiple use and sustained yield, unless otherwise specified by law. The Act defines "multiple use" as:

> "...the management of the public lands and their various resource values so that they are utilized in the combination that would best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services....; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historic values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment, with consideration being given to the relative values of the resources and not necessarily to the combination of uses that would give the greatest economic return or the greatest unit output." [43 USC Section 1792(c)]

FLPMA also established the policy that public lands are to "be managed in a manner that would protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, would preserve and protect certain public lands in their natural condition; that would provide food and habitat for fish, wildlife, and domestic animals; and that would provide for outdoor recreation, human occupancy, and use." [43 USC Section 1702 (a)(8)]

In addition to complying with the TGA and FLPMA, the BLM must comply with several other laws that affect the range management program. These include the Public Rangelands Improvement Act of 1978, the Wild Free-Roaming Horses and Burros Act of 1971, the Endangered Species Act of 1973, the National

Environmental Policy Act of 1969, and the Clean Water Act of 1972.

Grazing regulations were first promulgated pursuant to the Taylor Grazing Act. Before 1946, when the BLM was established, the Grazing Service assigned grazing privileges to landowners who historically grazed livestock on public rangelands. This was a complex and contentious process in which use areas, grazing levels, season-of-use, grazing fees, and base property qualifications were established. In subsequent years, the BLM refined the grazing regulations to incorporate new legislation and administrative initiatives. The regulations (Grazing Administration, exclusive of Alaska) are found in Volume 43 of the Code of Federal Regulations (CFR), Part 4100.

The BLM's grazing regulations were revised in August 1995. A new subpart directed each BLM State Director to develop "Standards and Guidelines for Grazing Administration." A Standard is a minimum resource condition to be achieved on BLM lands, and a Guideline is an acceptable or best management grazing practice that would be applied in order to achieve the Standards. In Utah, the State Director developed the Standards and Guidelines in consultation with the statewide Utah Resource Advisory Council. The Secretary of the Interior approved the "Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah" on May 20, 1997. Local plans and decisions may be more detailed than the Utah Standards and Guidelines, but must be in conformance with the Standards and be consistent with the Guidelines.

Grazing Management Process

Within the Monument, the following process would be followed so that grazing management conforms with the grazing regulations and Utah's Standards and Guidelines. In this process, each grazing allotment would be assessed, and new allotment management plans would be developed, consistent with the BLM-wide grazing permit renewal process.

Step 1: Assessment

All allotments (see Appendix 6 for allotment descriptions and map) would be assessed in accordance with the guidelines and guidance issued by the BLM. All available data would be used to make an overall assessment of rangeland health, including ecological processes, watershed functioning condition, water quality conditions, special status species, and wildlife habitat conditions for each allotment, as described in the Utah Standards for Rangeland Health, in light of the Fundamentals of Rangeland Health at 43 CFR § 4180.1.

Priorities for completing the assessments and implementing needed changes would be set using the following criteria:

- presence of values that are regulated by operation of law such as water quality, threatened and endangered or sensitive plant and animal species
- areas at high risk of becoming degraded, or high public interest areas
- permit renewal schedule

Step 2: Determination of Rangeland Health and Evaluation of Existing Grazing Management

The authorized officer (GSENM Manager) shall determine rangeland health for each allotment according to the Utah Standards and Guidelines for Grazing Administration, in light of the Fundamentals of Rangeland Health. The GSENM Manager determines whether or not assessment results show that each allotment is achieving or making significant progress toward the Utah Standards.

To the extent any assessment result is found to be inconsistent with the Standards, the GSENM Manager shall determine whether or not existing livestock grazing practices or levels of use are significant factors in such inconsistency. The GSENM Manager shall take appropriate action under 43 CFR Subparts 4120, 4130, and 4160 as soon as practicable, but not later than the start of the next grazing year, upon determining that existing grazing management practices or levels of grazing on public lands need to be modified to conform with Utah Standards and Guidelines.

Step 3: Develop Allotment Management Plans

The compatibility of grazing with other land uses would be evaluated in allotment management plans (AMP), and the results of the evaluation would be consistent with all applicable legal authorities, including FLPMA, the TGA, the Public Rangelands Improvement Act, 43 CFR Part 4180, Utah Standards and Guidelines, and National Wildlife Federation v. BLM, 140 Interior Board of Land Appeals (IBLA) 85 (1997). AMPs may be developed on an individual basis, or may be developed for a group of allotments where similar ecosystems or land uses exist. These AMPs may include integrated activity planning, addressing a range of non-grazing issues within the plan area.

Mandatory Content For AMPs

In addition to all other applicable legal authority, all AMPs shall be prepared in accordance with 43 CFR § 4120.2, and shall ensure that the following conditions exist:

1. Watersheds are in, or are making significant progress toward properly functioning physical condition. This must include their upland, riparian-wetland, and aquatic components. Soil and plant conditions must support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform, and must also maintain or improve water quality, water quantity, and timing and duration of flow.
2. Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow are maintained, or there is significant progress toward their attainment in order to support healthy biotic populations and communities.
3. Water quality complies with State water quality standards, and achieves or is making significant progress toward achieving established BLM management objectives such as meeting wildlife needs.
4. Habitats are, or are making significant progress toward being restored or maintained for Federal threatened and endangered species, Federal candidate species, and other special status species.

Allotment management plans shall designate lands that are available for livestock grazing. Grazing permits or leases shall specify the types and levels of use authorized, including livestock grazing and suspended use.

No allotments would be converted from cows and horses to domestic sheep within at least a 9 mile buffer of bighorn sheep habitat, except where topographic features or other barriers prevent physical contact. This is in order to prevent the spread of disease from domestic sheep to desert bighorn sheep. Other BLM guidelines or policy in regard to domestic and wild stock interactions would also apply.

Regarding conservation use, on September 1, 1998, the U.S. Court of Appeals for the Tenth Circuit decided Public Lands Council v. Babbitt, 167 F.3d 1287 (10th Circuit 1999). The case resolved the Government's appeal of an adverse U.S. District Court order enjoining the application of four separate grazing provisions in 43 CFR Part 4100. The Court of Appeals reversed the District Court's order on three of the four provisions. The only grazing provisions now enjoined are those providing that "conservation use" is a permissible use for a grazing permit.

AMPs would include a monitoring program in conjunction with the adaptive management framework (Appendix 3). The monitoring program would be designed to periodically observe and collect data to evaluate the effects of management actions prescribed in the AMP, and to evaluate the effectiveness of those actions in:

- meeting the management objectives stated in the AMP;
- achieving the conditions described as the Fundamentals of Rangeland Health (43 CFR 4180.1);
- meeting the Utah Standards for Rangeland Health, as indicated by the factors described therein; and
- ensuring that grazing use is not causing unacceptable resource degradation.

Optional Content for AMPs

Grass Bank Allotments/Pastures

The BLM's grazing regulations provide for increasing and decreasing the total number of animal unit months (AUMs) of specified livestock grazing (43 CFR 4110.3-1 and 4110.3-2). The setting aside of lands for future grazing use within the Monument, to offset potential future reductions in existing allotments or to facilitate research in grazing methods, is what the BLM refers to in this document as a grass bank. The BLM may designate grass banks on public lands within the Monument that are not apportioned to any grazing permittee or lessee. Grass banks shall meet the requirements of the Utah Standards and Guidelines in light of the Fundamentals of Rangeland Health, and they shall contain forage that may be apportioned on a sustained yield basis to qualified applicants for livestock grazing consistent with multiple-use management objectives. The BLM may consider making grass bank forage available on an emergency, nonrenewable basis under 43 CFR 4110.3-1(c). Should an allotment or a portion of an allotment become available through a voluntary relinquishment or an operation of law, it would be considered for grass banking.

The BLM is not obligated to graze the grass bank allotment annually, and use of the grass bank by qualified applicants, permittees, or lessees is within the discretion of the BLM.

Science

The geology, soils, and erosional characteristics in the Monument and the resulting plant communities provide opportunities to test, validate, and develop management methods, criteria, or techniques which would lead to improved grazing practices. Similarly, the Monument may present opportunities for testing new partnership arrangements with grazing permittees and interested publics that would lead to improved grazing practices. It would be the policy of the Monument to encourage the use of the special characteristics of the Monument to facilitate such testing or research using scientific methods where appropriate.

Schedule

The 3-step Grazing Management Process described above, and all associated NEPA documents, shall be completed within the 3 years commencing on the first July 1 following the approval of the Monument Management Plan.

NIGHT SKIES

Few places are as dark as south-central Utah. It is one of the darkest spots on NASA's satellite image of the United States at night. As such, the BLM would not propose actions within the Monument that would contribute to light pollution, and would be proactive in preventing light pollution within the Monument. The BLM would also work closely with the surrounding communities to minimize light pollution.

RIPARIAN

Riparian areas, though totaling less than 1 percent of the total lands in the Monument, are some of the most productive, ecologically valuable, and utilized resources in the Monument. The Riparian-Wetland Initiative for the 1990s established national goals and objectives for managing riparian-wetland resources on public lands. One goal is to provide the widest variety of vegetation and habitat diversity for wildlife, fish, and watershed protection.

Proper Functioning Condition (PFC) assessment protocols were developed to provide standardized assessments of riparian areas on public lands. The BLM uses this process to evaluate three components of a riparian-wetland area: (1) vegetation, (2) landform/soils, and (3) hydrology. Additional information may be collected during the PFC assessments of riparian areas.

The overall objective of the BLM with respect to riparian resources within the Monument would be to manage riparian areas so as to maintain or restore them to properly functioning conditions and to ensure that stream channel morphology and functions are appropriate to the local soil type, climate and landform.

Besides the general provisions that are provided elsewhere for use management, the following provisions apply to riparian areas. These provisions provide for the protection of these areas, as recognized in the Proclamation:

- Although the standard protocols do not include evaluation of special status species habitat or ecological processes, these resources would also be evaluated in all future riparian assessments.
- All segments of riparian habitat previously inventoried are scheduled to be reassessed as part of the grazing allotment assessments. Furthermore, riparian areas that have not been previously evaluated are scheduled for assessments in the next three years.
- Monitoring of riparian resource conditions, if not currently occurring, would be established to determine when actions should be taken to ensure movement towards proper functioning condition on all riparian stream segments in the Monument.
- Commercial filming, communication sites, and utility rights-of-way would avoid riparian areas whenever possible.
- Vegetation restoration methods (described in the **Vegetation Management** section of this chapter) would not be allowed in these areas, unless needed for removal of noxious weed species or restoration of disturbed sites. In these circumstances, consultation with the GSENM Advisory Committee would be used to determine the most appropriate control and restoration methods to ensure proper protection.
- The noxious weed control program would target invasive species such as tamarisk and Russian olive, which would improve riparian functioning condition.
- New recreation facilities would be prohibited, except for small signs for resource protection.
- Trails would be kept out of riparian areas wherever possible. Where this is not possible, trails could be designed to minimize impacts by placing trails away from streams, using soil stabilization structures to prevent erosion, and planting native plants in areas where vegetation has been removed.
- Group size limits may be imposed in these areas to restrict use beyond the restrictions provided in the various zones.

SCIENCE AND RESEARCH

Focus of Science and Research

The primary purpose for establishing GSENM is to protect the scientific and historic resources described in the Proclamation. Unparalleled opportunities for large-scale study of these resources are available throughout the Monument. In addition to the study of specific scientific resources, this setting allows study of such important issues as: understanding ecological and climatic change over time; increasing our understanding of the interactions between humans and their environment; improving land management practices; and achieving a properly functioning, healthy, and biologically diverse landscape. Science would be supported and encouraged, but intrusive or destructive investigations would be carefully reviewed to avoid conflicts with the BLM's responsibility to protect and preserve scientific and historic Monument resources. By conducting research in the Monument, the BLM would be able to protect resources using the best possible information. For example, baseline inventories for hanging gardens can identify areas that are sensitive and areas that may be affected by proposed activities. This would allow the BLM to take appropriate measures for the protection of these resources. A comprehensive and integrated research and science program would ensure that scientific resources are not only available for current research opportunities, but that certain scientific resources are preserved in place for future study.

Monument management priorities and budgets would focus on a more comprehensive understanding of the resources of the Monument while assisting in the development of improved and innovative land management, restoration, and rehabilitation practices. The natural, physical, and social sciences, including the study of history would each play an essential role in science and research activities.

Research projects would have a multi-scale and interdisciplinary approach when possible. Recreation and other uses would be managed to complement science and research objectives.

The first priority for conducting BLM-sponsored research would be to study, collect, or record scientific information that is most at risk of being damaged or lost through disturbance or the passage of time, including oral histories and ethnologies related to the Monument area. The second priority would be to continue gathering baseline data on the biological, physical, cultural, and social sciences within the Monument. A third priority would be to conduct applied research regarding the management of natural systems, including disturbance and recovery strategies.

Education and Outreach

The BLM would encourage researchers to incorporate a public outreach/education component into projects. Educators and students would have the opportunity to participate in research activities where appropriate. The BLM would also involve communities in science and education activities in order to provide the needed support to the emerging showcase of scientific exploration, cooperation, and management.

Research sites and visitor centers would emphasize scientific interpretation. Results of scientific research and inventory data would be disseminated through interpretive displays, publications, forums, and public exhibition of objects and artifacts. The BLM is currently working on an interpretive plan for the Monument. Themes for the various visitor contact stations would be identified as well as appropriate onsite and offsite interpretation areas and topics. The BLM would also play a role in developing educational programs for grades Kindergarten through 12, emphasizing the area's scientific and cultural resources. The BLM would also cooperate with colleges and universities in undergraduate and graduate programs as resources permit. A Monument Internet website, Monument-sponsored science publications, and cooperative field schools would be incorporated into management programs to the extent possible. In addition to normal avenues for research publications (scientific journals, symposia proceedings, etc.), the BLM would help facilitate the transfer of research information to the public through periodic science forums and Monument-sponsored publications.

Management of Science and Research Activities

In general, researchers would have to comply with the various zone prescriptions described throughout this chapter. However, some science and research activities may require the use of equipment, surface disturbance, and/or personnel which could exceed the management prescriptions outlined for visitors and other users. Except where specifically prohibited (e.g., in relict plant areas, wildlife protected activity centers), the BLM would consider exceptions to the zone prescriptions during the special-use permitting process for extremely high-value research opportunities, especially for those opportunities that may not be available elsewhere (e.g., Late Cretaceous terrestrial vertebrate evolution). Research projects focused on protecting resources at risk would also be considered for exceptions to zone prescriptions. The GSENM Advisory Committee would be consulted on whether research proposals which require restricted activities warrant the requested exceptions. Evaluation would consider whether the proposed research could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve the desired research objective. All research and related educational activities would require special-use permits. All research would meet Monument data collection standards to be established by the Monument Manager with the advice of the GSENM Advisory Committee, and would provide information that feeds directly into the adaptive management framework.

SPECIAL STATUS ANIMAL SPECIES

The BLM would take measures to promote the recovery and conservation of all special status animal species within the Monument (including Federally listed endangered and threatened species, candidate species, and State sensitive species). This would be in accordance with applicable Endangered Species Act regulations (50CFR402) and BLM policy (6840 Manual, IM UT No. 97-66). Federally listed animal species are discussed in detail below. There are currently no candidate animal species present within the Monument. A list of sensitive species is provided in Appendix 8. The BLM would continue ensure that actions authorized do not jeopardize the continued existence of any special status animal species or result in the destruction or adverse modification of critical habitats.

Activities would occur through consultation with the USFWS when listed or candidate species are involved, and also in conjunction with the U.S. Forest Service, the UDWR, and the National Park Service in areas where species cross jurisdictional lines. The BLM would work with these agencies to develop recovery plans, when needed, and to implement existing recovery plans for all listed species.

Surface disturbing research activities would generally not be allowed in threatened or endangered species habitat. All scientific research projects in close proximity to listed species populations or habitat would be evaluated by Monument biologists, the USFWS, and appropriate experts prior to initiation to determine impacts to these populations or habitat. Any research project that may have an effect on populations of listed species would be coordinated with the USFWS and appropriate permits and Section 7 consultation would be completed as determined necessary. Projects which provide new information and understanding of listed species, their populations, and/or their habitat, may be allowed after approval by the BLM and the review and issuance of permits by the USFWS. All projects would be evaluated on a case-by-case basis.

Protection of habitat (nesting, roosting and foraging) is a primary consideration in meeting the objectives for protection of listed species. The following activities and programs would benefit the listed species, by limitation or action:

- Fuelwood cutting, as described in the **Vegetation Management** section in this chapter, is restricted to designated areas, none of which would occur in known nesting or roosting habitat. These areas are small in size and are unlikely to affect foraging activities of raptors or other listed species. Future identification of fuelwood cutting areas would consider listed animal populations prior to designation.

- Maintenance of existing seedings would be allowed if consistent with the overall vegetation management objectives (see the **Vegetation Management** and **Overall Resource Objectives** sections of this chapter), but would not be allowed in areas where special status species roost or nest (unless consultation with USFWS indicates no effect to species). Research in seeded areas may be initiated to increase knowledge of disturbed ecosystems and provide information on restoration ecology. This knowledge would be helpful in the future if restoration is needed from unforseen disturbance, such as fires.

- There would be an active noxious weed control program in the Monument as described in the **Noxious Weed Control** section of this chapter. This program would focus on areas where habitat is being lost due to changes in the water table and changes in vegetation structure and composition caused by noxious weeds. This weed control program would include the use of volunteer groups, BLM employees, county personnel, contractors, and adjacent agency personnel when appropriate. This program would target species in a prioritized manner. Priorities for weed control may include: invasiveness of the species, extent of invasion, sensitivity of area being invaded, and accessibility.

- Nesting activities, roosting activities, and habitat of listed species can all be affected by use of OHVs in areas where they occur. All listed species would be substantially protected by restriction of OHV use to designated routes in the Monument. The BLM is pursuing cooperative agreements with each of the Sheriff departments in Kane and Garfield Counties to facilitate shared law enforcement and support for enforcing established closures. BLM law enforcement personnel and increased field presence of BLM field personnel would help deter non-compliance activities in closed areas.

- Livestock grazing allotments would be evaluated and grazing as it relates to all endangered species would be addressed during this process and would incorporate the latest research and information in the protection of species. Section 7 consultation would be conducted for all allotments that may affect listed species during the individual allotment evaluations. This process would provide protection for listed and sensitive species as the evaluation would be site specific for each of the allotments.

- The information on water describes a strategy for assuring water availability (see the **Water** section of this chapter). Priority would be to maintain natural flows and flood events. The measures described in that section would be initiated to accomplish this goal. In addition, the maintenance of instream flows would provide adequate water for natural structure and function of riparian vegetation.

The following additional measures would be applied to specific listed species in order to promote the protection and recovery of these species. Other measures may be implemented and some may be terminated, as deemed necessary through evaluation of monitoring data in conjunction with the adaptive management framework.

Endangered Fish

The Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*) are found in the Colorado River system and were more prevalent prior to the construction of Glen Canyon Dam. There are no known records of these two fish within the boundaries of the Monument, and recent surveys have not located these species in the Escalante River. Regardless of this fact, activity level environmental assessments would be required before the use of any chemical substances that may reach Lake Powell through the Escalante River. Furthermore, the main use of these substances would be in the control of noxious weeds, which would increase water flows and water quality.

Bald Eagle

The Northern States Bald Eagle Recovery Plan for the bald eagle was prepared in 1983, providing a strategy for the recovery of this species. Successful recovery of this species in much of its original range (most of North America) has initiated efforts to remove this species from the threatened species list. Regardless of the results of these efforts, the wintering habitat of this species in the Monument would be protected from actions that may contribute to its decline and actions that promote recovery and conservation would be encouraged.

- If recreation activities (e.g., hiking, camping, backpacking) are determined to impact known roost sites, allocations and/or group size restrictions or other measures would be implemented to reduce disturbance. If allocations and group size limits were implemented, they would be developed in accordance with the allocation and group size restrictions established for other areas of the Monument, described in the **Group Size** and **Recreation Allocation** sections in this chapter.

- Trail construction would generally be limited to the Frontcountry and Passage Zones. Project level assessments and consultation with the USFWS would be completed before construction of any trails that are in close proximity to eagle roost sites. Designated primitive camping areas, picnic areas, and trailheads would not be located in areas of known roost sites for bald eagles. Every effort would be made to protect potential roosting areas in the Monument from human disturbance activities.

- This Plan does not allow for the use of poisons for animal damage control activities. This eliminates the risk to eagles of feeding on poisoned animals. All control would be coordinated with Wildlife Services, as described in the **Wildlife Services** section of this chapter. Control of mountain lions and black bears are under the jurisdiction of the UDWR, and would be coordinated to assure protection of bald eagles from poisoning.

Peregrine Falcon

An American Peregrine Falcon Recovery Plan (Rocky Mountain Southwest Populations) was prepared in 1984 which outlined the recovery of this species in this part of the country. Due in large part to recovery efforts, they now breed from non-Arctic Alaska to southern Baja California, central Arizona and Mexico (locally), and their eastern limit presently follows the eastern front of the Rocky Mountains. The return of this species to much of its historic range has prompted efforts to remove the peregrine from the endangered species list [Federal Register (Vol. 63, No. 165) August 26, 1998, pp. 45446-45463]. Regardless of the results of these efforts, peregrine falcon habitat in the Monument would be protected from actions that may contribute to the decline of this species. Actions which promote recovery and conservation would be encouraged.

- If recreation activities (e.g., hiking, camping, backpacking) are determined to impact known nest sites, allocations and/or group size restrictions or other measures would be implemented to reduce disturbance. If allocations and group size limits were implemented, they would be developed in accordance with the allocation and group size restrictions established for other areas of the Monument, described in the **Group Size** and **Recreation Allocation** section of this chapter.

- Trail construction would generally be limited to the Frontcountry and Passage Zones. Project level assessments and consultation with the USFWS would be completed before construction of any trails proposed within 1 mile of falcon nest sites. New designated primitive camping areas, picnic areas, and trailheads would not be located within 1 mile of known falcon nests, unless consultation with USFWS determines that impacts to nesting birds would not occur. This 1 mile buffer is recommended in the "Utah Field Guide for Raptor Protection from Human and Land Use Disturbances" (USFWS, 1999).

- Criteria for designation of climbing areas would be established for the Monument. These criteria would not allow climbing areas to be designated in known peregrine falcon nest sites. If new sites are identified as occupied for nesting in areas designated for climbing, seasonal closures would be established in those areas to assure that disturbance of nesting activities does not occur.

Mexican Spotted Owl

A recovery plan for the Mexican spotted owl was prepared by the Southwest Region of the USFWS in 1995. No critical habitat has been designated for the spotted owl. Regardless of this fact, the protection of spotted owls and their habitat within the Monument would be protected from impacts which might contribute to their decline and actions which promote recovery and conservation would be encouraged.

- Fires have played only a small role in the recent history of vegetation in the Monument. Thus, the potential for large fires, which would remove foraging habitat for the owl, are minimal. Fire suppression activities may have a greater impact than allowing fire to burn in an area. With this in mind, suppression activities would be evaluated by fire resource advisors prior to implementation to provide appropriate protection measures in spotted owl habitat.

- If recreation activities (e.g., hiking, camping, backpacking) are determined to impact known nest sites, allocations and/or group size restrictions or other measures would be implemented to reduce disturbance. If allocations and group size limits were implemented, they would be developed in accordance with the allocation and group size restrictions established for other areas of the Monument, as described in the **Group Size and Recreation Allocation** sections of this chapter.

- Trail construction would generally be limited to the Frontcountry and Passage Zones. Project level assessments and consultation with the USFWS would be completed before construction of any trails that are in close proximity to owl nest sites.

Designated primitive camping areas, picnic areas, and trailheads would not be located within ½ mile of known spotted owl nesting, unless consultation with USFWS determines that impacts to nesting birds would not occur. This ½ mile buffer is recommended in the "Utah Field Guide for Raptor Protection from Human and Land Use Disturbances" (USFWS, 1999).

- Criteria for designation of climbing areas would be established for the Monument. These criteria would not allow climbing areas to be designated in known Mexican spotted owl nest sites. If new nest sites are identified in areas designated for climbing, seasonal closures would be established in those areas to assure that disturbance of nesting activities does not occur.

- A comprehensive inventory for spotted owls in the Monument was begun in 1999. This is a multi-year project that will look at occurrence of owls, current habitat, and potential habitat (i.e., habitat that is potential if modifications were made to that habitat). After the surveys are completed, the BLM would designate protected activity centers in accordance with the recovery plan. Activities such as recreational use in these protected areas may be limited to help protect this species. Limitations may include prohibition of camping or hiking during critical times of the year and/or limitations on the number of people or group size allowed. Limitations would be based on the identification of activities that may be affecting this species.

Southwestern Willow Flycatcher

For the purposes of the Endangered Species Act, all breeding southwestern willow flycatchers in GSENM are endangered southwestern willow flycatchers. Non-breeding southwestern willow flycatchers confirmed outside the June 22 to July 10 window may or may not be endangered willow flycatchers. No recovery plan has been prepared for this species, but efforts are underway to complete a recovery plan. Critical habitat was not designated for this species when it was listed, but action which promote the recovery and conservation of this species and habitat would be encouraged.

- A comprehensive inventory for southwestern willow flycatcher populations in the Monument was begun in 1999. This is a multi-year project that will look at occurrence of southwestern willow flycatchers, current habitat, and habitat that is potential if modifications are made (i.e., removal of tamarisk). This inventory will help to identify some of the impacts that are occurring in the area, which will help the BLM determine when and where limits on activities (such as recreational use) need to be implemented to protect the southwestern willow flycatcher.

California Condor

On October 16, 1996 the USFWS reintroduced the California condor into northern Arizona/southern Utah and designated this population as nonessential and experimental under section 10(j) of the Endangered Species Act [Federal Register (Vol. 61, No. 202) October 16, 1996, pp. 54044-54060]. The purpose of this population is to establish a second non-captive population, spatially disjunct from the southern California population as part of the recovery for this species. An agreement between the counties in Utah and the USFWS outlines a positive working relationship, and stipulates that reintroduction would not impact current or future land use planning. Although Section 7 consultation is not required for this species, the USFWS and the BLM agree that it is appropriate and desirable to discuss this species. Efforts would be made to protect potential habitat for this species and to limit activities which may be detrimental to their existence in cooperation with the counties and the USFWS.

Kanab Ambersnail

A recovery plan for the Kanab ambersnail was prepared in 1995. In Utah, the ambersnail is known to exist in two small populations in Kanab Creek and a new location near the "Best Friends Sanctuary" just outside Kanab (Meretsky, personal communication, 1998). Although Kanab Creek is a drainage not connected to the Monument, there is the potential for this species to occur within the Monument. Surveys for this species have begun in 1999. Surveys are being conducted in potential habitat, moist seeps, and along water courses in the Grand Staircase portion of the Monument. Results of this survey will be used to determine the potential for further surveys. If this species is discovered in the Monument, actions would be taken to improve habitat as consistent with the recovery plan objectives. Actions may include assuring flows in appropriate streams and seeps by removing non-native plants affecting the water table and reducing impacts from visitors and/or livestock. Surveys will also identify current habitat and habitat that is potential if modifications are made.

SPECIAL STATUS PLANT SPECIES

In addition to the vegetation management objectives stated previously, the BLM would take measures to promote the recovery and conservation of all special status plant species within the Monument (including Federally listed endangered and threatened species, candidate species, and State sensitive species). This would be in accordance with applicable Endangered Species Act regulations (50 CFR 402) and BLM policy (6840 Manual, IM UT No. 96-69). Federally listed plant species are discussed in detail below. There are currently no candidate plant species present within the Monument. A list of sensitive species is provided in Appendix 9. The BLM would continue to ensure that actions authorized do not jeopardize the continued existence of any special status plant species or result in the destruction or adverse modification of critical habitats.

Activities would occur through consultation with the USFWS when listed or candidate species are involved, and also in conjunction with the U.S. Forest Service, the Utah Division of Wildlife Resources' Natural Heritage Program, and the National Park Service in areas where plant species cross jurisdictional lines. The BLM would work with these agencies to develop recovery plans, when needed, and to implement existing recovery plans for all listed species.

Although there are emergency exceptions for specific activities in the Monument, vehicular travel into areas of known habitat or locations of sensitive species would not be included in these provisions. These locations would be protected from impacts that might lead to the decline of the species unless, through consultation with the USFWS, the action is deemed necessary for proper management of the species.

Surface disturbing research activities would generally not be allowed in threatened or endangered plant species habitat. All scientific research projects in close proximity to listed species populations or habitat would be evaluated by Monument biologists, the USFWS, and appropriate experts prior to initiation to determine impacts to these populations or habitat. Any research project which may have an effect on populations of listed species would be coordinated with the USFWS and appropriate permits and Section 7 consultation would be completed as determined necessary. Projects which provide new information and understanding of listed species, their populations and/or their habitat, may be allowed after approval by the BLM and the review and issuance of permits by the USFWS. All projects would be evaluated on a case-by-case basis.

Livestock grazing has the potential to be detrimental to listed plant species through trampling, soil compaction, and disturbance of riparian vegetation during certain seasons. Grazing can be beneficial to Ute ladies'-tresses, however, by controlling or limiting the density of the vegetation, allowing the orchid to get enough light to grow. In fact, the Ute ladies'-tresses population is currently healthy, leading to the conclusion that current levels of grazing are either benign or beneficial to the population. For Kodachrome bladderpod and Jones' cycladenia there is little potential for cattle to impact these populations in the Monument, due to the sparse vegetation and inaccessibility where they grow. Grazing allotments would be evaluated consistent with the BLM-wide grazing permit review process. This process would address protection of endangered species and would incorporate the latest research and information in the protection of species. Section 7 consultation would be conducted for all allotments during the individual allotment evaluations. This process would provide necessary protection for listed and sensitive species.

Fuelwood cutting, as described in the **Forestry Products** section of this chapter, is restricted to designated areas, none of which would occur in listed species populations. Future fuelwood cutting areas would not be designated in listed plant populations.

There would be an active noxious weed control program in the Monument as described in the **Noxious Weed Control** section of this chapter. Areas with threatened or endangered plants would be targeted for these activities as a first priority. BLM employees or contractors with appropriate certification would be responsible for use of chemicals in noxious weed removal efforts, and would take precautions to prevent possible effects to non-target species.

Public education about protection of these species would be an integral part of all projects and would be provided in interpretive displays and handouts at project sites and visitor centers around the Monument. Information would also be included on the Monument website.

Commercial filming, communication sites, utility rights-of-way, and road rights-of-way would not be permitted in known special status species populations for any reason. As permits are granted for these sites and rights-of-way, surveys would be completed to determine the presence of special status species in the area. If they are found, these activities would be moved to another location.

Reseeding or surface disturbing restoration after fires in these areas would not be allowed. Natural diversity and vegetation structure would provide adequate regeneration of areas. Management ignited fires would also not be allowed in these areas.

The following additional measures would be applied to specific listed species in order to promote the protection and recovery of these species. Other measures may be implemented and some may be terminated, as deemed necessary through evaluation of monitoring data in conjunction with the adaptive management framework.

Jones' Cycladenia

- Historically, there have been threats from mining and mineral operations in the Jones' cycladenia populations. No new mining claims or mineral/oil and gas leases are allowed on the Monument. Furthermore, there are currently no mining or mineral operations in the area that would affect this population of plants or its habitat. There are oil and gas leases in the area, some of which have been suspended. These leases expire by the year 2003 if no action is taken to develop them. If a lease holder submits an application for permit to drill on these leases, stipulations would be placed in the permit to prevent impacts to these populations through avoidance or other conservation measures (through consultation with the USFWS). Due to the current state of hydrocarbon resources in the country, there is limited potential for the development of these leases prior to their expiration.
- Jones' cycladenia habitat would be substantially protected by restrictions on OHV use in the Monument. Since OHV use would occur on designated routes in the Monument, and none of these routes are near the population or habitat, there would be no impact from these activities to the Jones' cycladenia population (refer to the **Enforcement** section in this chapter).
- Inventories to locate new populations of this species would be conducted to provide more accurate information on distribution and to facilitate protection and recovery.

Kodachrome Bladderpod

- Historically, there have been threats from mining and mineral operations in the Kodachrome bladderpod populations. No new mining or mineral claims would be allowed on the Monument. Furthermore, there is no mining or mineral development in the Kodachrome bladderpod population currently, and no existing mining claims or mineral leases in the population area.
- Monitoring plots were established in 1997 to determine population health and to measure impacts to the Kodachrome bladderpod population. Areas documented as having impacts in 1998 were temporarily closed and would remain closed to travel

off of designated routes in conjunction with plan provisions in the **Transportation and Access** section of this chapter. The one route remaining open in that area would be closed to OHV use.

- Physical barriers as well as "closed" signs may be placed in strategic locations to prevent access into areas where the Kodachrome bladderpod grows. Restoration in closed areas may occur to eliminate impacts and return the area to pre-disturbance condition. Monitoring would continue in order to determine effects of closures and to measure the resilience of the population.

- Compliance with established closures would be facilitated by the BLM pursuing cooperative agreements with each of the Sheriff departments in Kane and Garfield Counties, who would aid in enforcing established closures. The BLM law enforcement personnel would help with the increased enforcement of closures. The increased field presence of BLM field personnel would help deter non-compliance activities in closed areas.

- Additional monitoring sites would be developed in strategic locations to measure impacts to the population, following established protocols. If, through monitoring, impacts to the population from visitors were identified, visitor allocations or other measures would be imposed to prevent impacts from increased visitation and use. Group size and numbers of groups allowed in the area, as well as the types of activities allowed, could be limited to accomplish these goals.

- Trails, parking areas or other recreations facilities would not be allowed in these areas.

- Camping, overnight stays and campfires would not be allowed in these areas.

Ute Ladies'-tresses

- The information in the **Water** section of this chapter describes a strategy for assuring water availability. Under that strategy, priority would be to maintain natural flows and flood events. In addition, the maintenance of instream flows would provide adequate water for natural structure and function of riparian vegetation.

- Surveys for this species would be completed during the 1999 growing season and results of this survey would be used to determine any further actions.

- Appropriate actions would be taken to prevent trampling of the plants by visitors in high-use areas. These actions may include replanting native vegetation or construction of barriers.

- Areas may be closed if necessary to protect these plants. Barriers would be constructed and restoration work initiated to stabilize the soil and banks and provide the best possible habitat for this plant.

- No expansion of current or new facilities would be permitted where this plant grows.

- Existing trails in areas where this plant grows would be relocated out of the area when possible. These protection measures apply to current as well as future potential habitat areas for this species.

- Interpretive materials would be developed to educate the public about Ute ladies'-tresses and the actions being implemented to protect it.
- Restoration of the current social trails in known populations would be initiated, including obliteration of the trail by planting native species, and moving soil to return the area to its natural grade. Group size restrictions, allocations or other measures would be initiated if continued monitoring indicates that visitor use in the area is causing impacts.

VALID EXISTING RIGHTS AND OTHER EXISTING AUTHORIZATIONS

The Proclamation establishing the Monument states: "The establishment of this monument is subject to valid existing rights." This sentence reflects the President's intention to honor rights that existed prior to the establishment of the Monument. Before it was established, the lands within GSENM were subject to various authorizations, some giving "rights" to the holders and some of which could be construed as providing valid, but lesser, interests.

Valid existing rights (VERs) are those rights in existence within the boundaries of GSENM when the Monument was established on September 18, 1996. Valid existing rights were established by various laws, leases, and filings under Federal law, and for leases on lands acquired by the United States from Utah, under Utah State law. This section describes such VERs within the Monument, addresses how VERs would be verified, and explains how applications and notices filed after completion of this Plan on existing mining claims would be addressed. Also addressed are the lesser interests or other authorizations that existed prior to September 18, 1996; a discussion of how those authorizations would be handled subsequent to approval of the Plan is also included.

Energy and Mineral Activities (Including Hardrock, Oil, Gas, and Coal)

The Proclamation establishing the Monument withdrew all Federal lands and interests in lands within the Monument from entry, location, selection, sale, leasing, or other disposition (except for exchanges that further the protective purposes of the Monument) under the public land laws, including the mineral leasing and mining laws. Thus, no new Federal mineral leases or prospecting permits may be issued, nor may new mining claims be located within the Monument.

Authorization for activities on existing mineral leases and mining claims, according to the Proclamation, would be governed by VERs.

With respect to oil and gas leases, mineral leases, and mining claims "valid existing rights" vary from case to case, but generally involve rights to explore, develop, and produce within the constraints of laws and regulations. The Federal laws, regulations, and standards related to Mineral Activities are described in Chapter 2 of the DEIS.

Within the Monument, there are currently 68 Federal mining claims covering approximately 2,700 acres, 85 Federal oil and gas leases encompassing more than 136,000 acres, and 18 Federal coal leases on about 52,800 acres (Table 2.1). Newly acquired Utah School and Institutional Trust Lands Administration (SITLA) mineral and oil and gas leases are summarized below in the section titled **School and Institutional Trust Lands Administration Lands Acquired**.

The BLM would verify whether VERs are present in each of these cases by periodically reviewing the files related to existing mining claims and leases. This would help ensure that required actions, filings, and fees are in full compliance with the law. This process, known as adjudication, would continue for the life of each VER. With regard to mining claims and millsites located under the Mining Law of 1872, the BLM would initiate a validity examination process to verify the VERs of claimants before such claimants conduct surface disturbing activities greater than casual use. Valid mining claims require existence on September 18, 1996, of a discovery of a valuable mineral deposit, as well as a continuing discovery to the date of the validity examination and thereafter. For previously approved operations, the BLM would conduct validity examinations. For new proposals, except as described in the next sentence, the BLM would (1) withhold approval of plans of operations under 43 CFR 3802 or 3809 until the validity examination process is complete and the claims are determined to be valid; and (2) inform persons who have written the BLM that they intend to commence notice-level operations under 43 CFR 3809 that such operations cannot commence until the BLM completes its validity examination process and has verified that there are VERs. Until the validity examination process is complete, the BLM may allow notice-level operations or approve a plan of operations under 43 CFR 3809 for operations on unreclaimed previously disturbed areas, which are limited to taking samples to confirm or corroborate mineral exposures that are physically disclosed and existing on the mining claim. BLM may deny plans of operations without the performance of a validity examination if such denial is consistent with BLM regulations and policy.

In addition, VERs may be examined in the field for compliance with laws and regulations. The BLM would continue to monitor oil and gas activities through its Inspection Program.

Once a VER is verified, the process used to address applications or notices filed under that VER (such as an application to drill on an oil or gas lease, or a plan of operations or notice filed on a mining claim) would vary by commodity and regulation. However, for all applications and notices, the BLM would use a documented analysis (NEPA or other written documentation) to determine potential impacts on the Monument resources that the Approved Plan is required to protect. Once such analysis is completed, the BLM would take the following actions on a case-by-case basis:

1. If the analysis indicates no impact to Monument resources, or indicates impacts to resources, but determines that the impacts are consistent with the Proclamation and this Plan, the proposed operation can proceed in accordance with applicable regulations, standards and stipulations.
2. If analysis and documentation indicate that, under the laws, regulations, and stipulations discussed above, a proposal may have impacts that are not in conformance with the Proclamation and this Plan, the BLM would take the following actions on a case-by-case basis:
   - A. Work with the applicant to find alternatives or modifications to the proposal that would either:
     1. Cause no adverse impacts to Monument resources, or
     2. Minimize such impacts through special stipulations or other permit conditions, consistent with the applicant's rights.
   - B. If unable to prevent or minimize adverse impacts as described in A, disapprove the proposed action if disapproval is consistent with the applicants' rights. For persons with rights within WSAs within the Monument, the BLM would also be guided by its July 5, 1995, Interim Management Policy and Guidelines for Lands Under Wilderness Review.

Table 2.1
Summary of GSENM Mineral Leases

Summary of GSENM Mineral Leases		
Lessee	*No. Leases*	*Acres*
	Federal Coal Leases	
Andalex	17	34,499
PacifiCorp	1	18,287
Subtotal	18	52,786
	Federal Oil & Gas Leases	
Individual Operators	14	9,984
Citation O&G, et al.	6	9,153
Kidd Family Partnership	7	10,672
Conoco - Rangeland	58	106,518
Subtotal	85	136,327
Total		*189113*

Other Existing Rights or Interests

There are other situations, unrelated to minerals, in which the BLM has authorized some use of public land, or has conveyed some limited interest in public land. The authorization may be valid, existing when the Monument was designated, and may convey some "right" or interest. Many rights-of-way[2], easements[3], and leases[4] granted on public land are in this category. They vary from case-to-case, but the details of each one are specified in the authorizing document. Chapter 2 in the DEIS lists the authorizations for these activities.

These authorizations, where they are valid and existed when the Monument was established, would be recognized in the Monument and their uses would be allowed subject to the terms and conditions of the authorizing document. Where these uses conflict with the protection of Monument resources, and where legally possible, leases, permits, or easements would be adjusted to eliminate or minimize adverse impacts.

There are currently 106 rights-of-way authorized under FLPMA and the Mineral Leasing Act (see Chapter 3 of the DEIS for more detail on existing rights-of-way and other authorizations). In addition to these authorizations, there are 17 authorized mineral material sites in the Monument where the removal of construction-type minerals such as sand and gravel had been allowed. Seven of the mineral material sites were authorized

76

BEST COPY AVAILABLE

under the Materials Act of 1947 (30 USC 601 *et seq.*), as amended, and were subject to either free use permits or contracts of sale. The Materials Act of 1947 specifically excludes the disposal of mineral materials from National Monuments. As a result, free use permits or contracts for mineral materials authorized under this Act would not be renewed.

The remaining ten sites are authorized under Title 23 USC Section 107 (1998), which provide for the appropriation of lands or interests in lands for highway purposes (see Chapter 3 of the DEIS for more detail on existing mineral material sites and Title 23 sites). Unlike free use permits or contracts for sale of mineral materials that are issued for a fixed term, Title 23 rights-of-way continue indefinitely. The BLM does not resume jurisdiction over the land covered by the rights-of-way until the lands are returned to the BLM upon a determination by the Federal Highway Administration that the need for the material no longer exists. Existing Title 23 rights-of-way within the Monument are inconsistent with the protection of Monument resources. The BLM would request closure of those sites from the Federal Highway Administration and would work with the Federal Highway Administration to find suitable replacement sources of mineral material.

Non-Federal Land Inholdings

There are approximately 15,000 acres of private land within the boundary of the Monument. They are not Monument lands, but their presence has implications for Monument lands, because landowners generally have rights to reasonable access to their lands across public lands. The Proclamation does not alter that.

Owners of non-Federal land surrounded by public land managed under FLPMA are entitled to reasonable access to their land. Reasonable access is defined as access that the Secretary of the Interior deems adequate to secure the owner reasonable use and enjoyment of the non-Federal land. Such access is subject to rules and regulations governing the administration of public land.[7] In determining reasonable access, the BLM has discretion to evaluate and would consider such things as proposed construction methods and location, reasonable alternatives, and reasonable terms and conditions as are necessary to protect the public interest and Monument resources.

The BLM would consider land exchanges and acquisitions so long as the current owner is a willing participant and so long as the action is in the public interest, and is in accordance with other management goals and objectives of this Plan. The action must also result in a net gain of objects and values within the Monument, such as wildlife habitat, cultural sites, riparian areas, live water, threatened or endangered species habitat, or areas key to the maintenance of productive ecosystems. The action may also meet one or more of the following criteria:

- ensures the accessibility of public lands in areas where access is needed and cannot otherwise be obtained;
- is essential to allow effective management of public lands;
- results in the acquisition of lands which serve a National priority as identified in National policy directives.

All land exchanges and acquisitions would be subject to VERs as determined by the BLM.

Other Land Use Authorizations

There are a variety of other land use authorizations which were in effect at the time of the Proclamation, and which, although they involve no "rights," are being continued in the Monument. Outfitter and guide permits are an example. These permits authorize certain uses of public land for a specified time, under certain conditions, without conveying a right, title, or interest in the land or resources used. Such permits would be recognized in the Monument and fulfilled subject to the terms and conditions of the authorizing document. If at any time it is determined that an outfitter and guide permit, other such permit, or any activities under those permits, are not consistent with the Approved Monument Management Plan, then the authorization would be adjusted, mitigated, or revoked where legally possible.

Grazing permits are also in this category. Grazing permits or leases convey no right, title, or interest in the land or resources used. Although the Proclamation specifically mentions livestock grazing, it does not establish it as a "right" or convey it any new status. The Proclamation states that "grazing shall continue to be governed by applicable laws and regulations other than this proclamation," and says that the Proclamation is not to affect existing permits for, or levels of, livestock grazing within the Monument. Other applicable laws and regulations govern changes to existing grazing permits and levels of livestock grazing in the Monument, just as in other BLM livestock grazing administration programs. Management of livestock grazing is addressed previously in the **Livestock Grazing** section of this chapter.

School and Institutional Trust Lands Administration Lands Acquired

On October 31, 1998, President Bill Clinton signed into law the Utah Schools and Lands Exchange Act of 1998 (Public Law 105-335), ratifying a May 8, 1998 Agreement to Exchange Utah School Trust Lands Between the State of Utah and the United States of America (Agreement). Under this Act, the State inholdings within the Monument were transferred to the United States, along with the mineral interest on approximately an additional 24,000 acres. The lands contain numerous interests of varying types (e.g., leases, permits, licenses) held by third parties. The conveyance occurred on January 8, 1999. Section 5(A) of the Agreement provides that any lands and interests in lands acquired by the United States within the exterior boundaries of Grand Staircase-Escalante National Monument under the Agreement shall become part of the Monument and shall be subject to all laws and regulations applicable to the Monument.

The conveyance by the State of Utah to the United States was subject to all VERs, existing authorizations, and other interests outstanding in third parties found acceptable under the Attorney General's title regulations, including:

- valid existing water rights owned by private parties;
- all leases, permits and contracts for grazing of domestic livestock, and the related terms and conditions of the State's user agreements;
- title to, or any interest in, any range improvement held by any private party on such lands;
- all rights-of-way and special use agreements; and
- existing surface and mineral leases.

Table 2.2 summarizes the leases, permits, and other authorizations associated with SITLA lands that were acquired by the BLM within the Monument.

Table 2.2
Summary of Authorizations Acquired from SITLA

Number	Type	Miles/Acres
1	Water storage/settling pond permit	5.99acres
2	Water pipeline permits	4.64acres
1	Water pipeline permit	No data available
1	Water pipeline easement	1.00acres
3	Power line permits	7.59miles
2	Power line permits	No data available
1	Power line easement	0.55 miles
1	Oil pipeline permit	1.29 acres
1	Oil storage facility permit	3.01 acres
6	Fence permits	6.78 miles
1	Stock watering well permit	18.99 acres
1	Trail permit	No data available
1	Stock driveway permit	0.75 miles
1	Livestock watering site permit	839 ft. of pipe & 28 ft. of troughs
1	Pipeline, valves & boxes permit	No data available
1	Building side camp permit	No data available
2	Unpaved route permits	2.93 acres
1	Unpaved route permit	No data available
2	Paved road (highway) permits	67.79 acres
80	Livestock grazing permits	134,174.53 acres
7	Coal leases	4,479.96 acres
3	Gypsum leases	200.00 acres
3	Gem/Fossil leases	240.00 acres
14	Metallic minerals leases	7,560.83 acres
93	Oil and gas leases	76,643.24 acres
1	Building stone leases	40.00 acres

The Agreement provides express assurances that the United States would accept the transferred lands subject to VERs found acceptable under the Attorney General's title regulations. Specifically, section 6 makes clear that nothing contained in the Agreement would impair valid existing water rights owned by private parties. All terms and conditions of existing State grazing permits would be honored. Moreover, ranchers who rely on the State section to meet Federal base property requirements for Federal grazing permits would be able to continue to use the former State section to qualify as base property. The agreement also includes a provision ensuring that nothing expands or diminishes pre-existing rights-of-way under State or Federal law. Finally, mineral leases would remain in force and subject to their existing terms.

The BLM would be acting in place of the State in administering all valid existing authorizations for the remainder of the applicable term in accordance with State laws and regulations. As part of such administration, BLM decisions would be subject to those Federal laws which are ordinarily attached to Federal decisions (e.g., the National Environmental Policy Act, Endangered Species Act, National Historic Preservation Act). Renewal of any lease, permit, or contract would occur if provided for under the terms of the lease, permit, or contract. Upon expiration of any grazing lease or permit, the holder shall be entitled to a preference right to renew such lease or permit to the extent provided by Federal law. This provides a priority to the holder of the expiring lease or permit against other applicants, but does not guarantee that a renewal will occur. (Public Lands Council v. Babbitt, 158 F.3rd 1160, 1171 (10th Cir 1998))

VEGETATION MANAGEMENT

Relict Plant Communities and Hanging Gardens

Relict plant communities are areas that have persisted despite the pronounced warming and drying of the interior west over the last few thousand years (Betencourt, 1984) and/or have not been influenced by settlement and post-settlement activities (such as domestic livestock grazing). This isolation, over time and from disturbance, has created unique areas that can be used as a baseline for gauging impacts occurring elsewhere in the Monument and on the Colorado Plateau.

Hanging gardens occur where ground water surfaces along canyon walls from perched water tables or from bedrock fractures. The existence of hanging gardens is dependent on a supply of water from these underground water sources. The geologic and geographic conditions for hanging gardens exist throughout southern Utah (Welsh and Toft, 1981), including the Monument. The potential for finding additional locations of hanging gardens in the Grand Staircase and Escalante sections of the Monument is also high. Due to the conditions of isolation produced in hanging gardens, there is a potential for unique species in these areas.

In addition to the general provisions provided elsewhere for use management, the following provisions apply to hanging gardens and relict areas. These provisions provide for the protection of these areas, as recognized in the Proclamation:

- Vegetation restoration methods (described in the next section) would not be allowed in these areas, unless needed for removal of noxious weed species. In these circumstances, consultation with the GSENM Advisory Committee would be used to determine the most appropriate control methods to ensure proper protection.
- No new water developments would be authorized in these areas. Maintenance activities would be allowed if these resources were not effected.
- Surface disturbing research would not be allowed in these areas.
- Parking areas or other recreation facilities would not be allowed in these areas.
- Camping, overnight stays, and campfires in these areas would not be allowed.
- Group size limits may be imposed in relict plant areas to restrict use beyond the restrictions provided in the various zones. Most of these areas occur in the Primitive Zone which has limits of 12 people and 12 pack animals. Pack stock would not be allowed in these areas, effectively limiting the group size to 12 people.
- Communication sites and utility rights-of-way would not be allowed in these areas.
- Inventories, modeling, and field investigations for both relict plant communities and hanging gardens would be conducted to ensure their protection. Current information on the location of these associations in the Monument are largely anecdotal and may change following consideration of inventory data.

Vegetation Restoration Methods

A variety of vegetation restoration methods may be used to restore and promote a natural range of native plant associations in the Monument. Use of machinery, as defined below, would not be allowed in the Primitive Zone. Methods and projects which do not achieve this objective or which irreversibly impact Monument resources would not be permitted. Vegetation restoration methods fall into four broad categories: mechanical, chemical, biological, and management ignited fires. Each of these methods would be used in accordance with the overall vegetation objectives discussed in the **Vegetation** section of this chapter, and progress towards these objectives would be monitored as part of the **Implementation and Adaptive Management Framework** (Appendix 3).

Mechanical methods include the use of hand tools (e.g., chainsaws, machetes, pruners), the use of machinery (e.g., roller chopping, chaining, plowing, discing), and manual pulling. Chaining has been used in the past to remove pinyon and juniper prior to reseeding with perennial grasses. Due to the potential for irreversible impacts to other Monument resources, such as archaeological sites and artifacts, and paleontological resources, this treatment method would not be used to remove pinyon and juniper. It would be allowed to cover rehabilitation seed mixes with soil after wildfires where: (1) noxious weeds and invasive non-native species are presenting a significant threat to Monument resources or watershed damage could occur if the burned area is not reseeded, (2) it can be demonstrated that Monument resources would not be detrimentally affected (i.e., completion of full archaeological, paleontological, threatened and endangered species and other resource clearance and consultation), (3) it is determined that seed cover is necessary for the growth of the native species proposed for seeding, and (4) other less surface disturbing measures of covering seed are not available or cannot be applied in a timely manner. Visual impacts of chaining would also be minimized near routes and other points of concern by covering the native seed mix with harrows or light chains. The GSENM Advisory Committee would be consulted before the mechanical treatments are permitted.

Livestock grazing after the native seedings are established would be modified to ensure the survival of the native plants. The livestock exclusion period required to allow full establishment of seeded native species and recovery of surviving native plants after a wildfire may be more than two years. Site evaluation would be required to determine when the native seedings should be grazed again and the effectiveness of the current or new grazing system on the persistence of native plants.

Chemical methods, including aerial spraying, would generally be restricted to the control of noxious weed species, and are discussed in that section. The use of chemicals may be allowed in conjunction with research projects and must lead to the achievement of the overall vegetation objectives. These activities would be approved as determined appropriate through consultation with the GSENM Advisory Committee.

Biological control would be used exclusively for control of noxious or exotic weed species and a discussion is included in that section.

The last method is the use of management ignited fire. This is the method most likely to be used in the Monument and would be used when fire has been documented to historically occur in an area, and where various factors have prevented natural fire cycles from occurring. In these circumstances, management ignited fires may be used, and would attempt to simulate natural fire intensity and timing. Specific objectives for all management ignited fires would be developed prior to its use in the Monument. The use of non-native plants in conjunction with fire rehabilitation is discussed in the non-native plant section. All fire activities would be conducted and coordinated with appropriate fire management personnel, as provided for in the Color Country Interagency Fire Management Area annual operating plan.

With all of the methods described above, vegetation monitoring plots would be established to determine the effectiveness of the treatments in achieving management objectives and to provide baseline data of overall change. This monitoring would include species frequency, density and distribution data, and would be part of the overall adaptive management framework described in Appendix 3.

Noxious Weed Control

In accordance with National and State policies, the BLM is mandated to control noxious weed species. Control of noxious weeds is also a priority to achieve the overall vegetation objectives stated above. In the control of these invasive species it is imperative to have an array of methods from which to choose. Use of chemicals (aerial spraying, hand spraying, and painting), hand cutting, biological control agents, and manual pulling are all viable methods for control of noxious weed species. Each of these methods has a place in the control of these invasive species and would be evaluated for its effectiveness as eradication projects are designed. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to non-target plant species. Aerial chemical applications could only be used in limited circumstances where: (1) accessibility is so restricted that no other alternative means is available, (2) it can be demonstrated that non-target sensitive species or other Monument resources would not be detrimentally affected, and (3) noxious weeds are presenting a significant threat to Monument resources. The GSENM Advisory Committee would be consulted before the aerial application of chemicals is permitted.

Working in conjunction with Kane and Garfield Counties and adjacent U.S. Forest Service and National Park Service staffs, the BLM hopes to control noxious weed species and prevent introduction of new invasive species into the Monument and surrounding ecosystems. An active control program would target species in a prioritized manner. Priorities for weed control may include: invasiveness of the species, extent of invasion, sensitivity of area being invaded, and accessibility. Project level environmental assessments or other NEPA analysis would be completed prior to noxious weed removal project initiation.

In addition to strategies for control of noxious weeds, it is also imperative to reduce the introduction of noxious weed species as stated in Presidential Executive Order (EO 11312) on invasive species. Cooperative programs established for control of these species can also help identify potential new invasions before area-wide establishment has occurred. There are two policies which would help to reduce potential noxious weed introduction. First, the BLM requires that all hay used on BLM lands be certified weed free. This is a statewide policy which applies to the Monument, as well as all other BLM lands in the State of Utah. Second is the requirement that all machinery that has been used outside the Monument be cleaned prior to use in the Monument. This provision generally applies to contract equipment used for projects such as construction of facilities and firefighting equipment. Both of these provisions would help reduce the introduction and spread of noxious weed species in the Monument. For major removal projects, monitoring plots would be established in key areas to determine effectiveness of methods and presence of noxious weed species. All projects would contain restoration and/or revegetation protocols to minimize re-colonization of treated areas by noxious weed species. Monitoring in these areas would be part of the adaptive management framework described in Appendix 3.

Forestry Products

Fuelwood (green or dead and down) harvesting, post cutting, and Christmas tree cutting would be allowed by permit only within designated areas (Map 2.2). There are currently two fuelwood cutting areas located in the Monument: Rock Springs Bench area and Buckskin Mountain area. More areas may be designated to meet the overall vegetation management objectives, but would not be allowed outside already disturbed areas. All cutting areas would be designated under a permit system, with maps provided to assure compliance. Off-highway vehicle restrictions discussed in previous sections would apply to all of these activities and vehicular travel would be allowed only on designated routes. Vehicles would be permitted to pull no more than 50 feet off of a designated route in designated wood cutting areas to load fuelwood in the Outback Zone, the same as is allowed for accessing dispersed primitive camping areas in that zone.

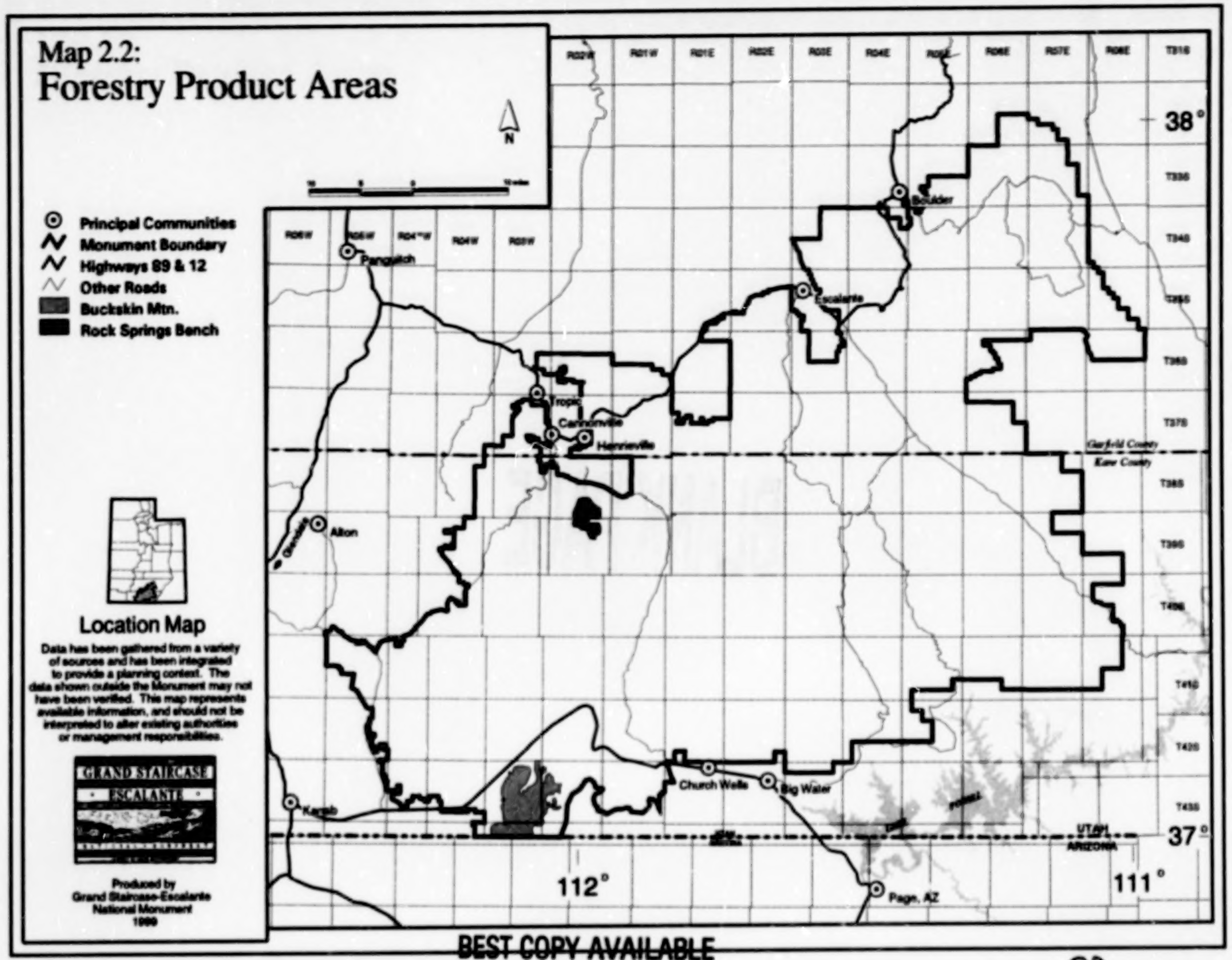
No commercial timber harvesting is authorized within the Monument. Commercial fuelwood cutting would be limited and authorized in designated areas only to accomplish the vegetation management objectives.

Native Vs. Non-native Plants

In keeping with the overall vegetation objectives and Presidential Executive Order 11312, native plants would be used as a

82

Map 2.2:
Forestry Product Areas



Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Produced by
Grand Staircase-Escalante
National Monument
1999

BLANK PAGE

priority for all projects in the Monument. There are limited, emergency situations where it may be necessary to use non-native plants in order to protect Monument resources by stabilizing soils and displacing noxious weeds. This use would be allowed, on a limited emergency basis, to the extent that use complies with the vegetation objectives, Presidential Executive Order 11312, and the *Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah* (1997). In these situations, short-lived species (i.e., nurse crop species) would be used and would be combined with native species to facilitate the ultimate establishment of native species. All projects proposed in the Monument would contain a restoration or revegetation component and would budget for the cost of seeding with native species. All planning for projects, in all except limited, emergency situations, would use native species, and the use of non-native species would not be analyzed as an alternative.

Non-native plants may also be used for restoration related research, if the use is consistent with and furthers the overall vegetation management objectives, and after consultation with the GSENM Advisory Committee. Non-native plants could not be used to increase forage for livestock and wildlife. If non-native plants are used in an area, monitoring plots would be established to document changes in vegetation structure and composition and would be an integral part of the adaptive management framework.

Reseeding after Fires

When deciding whether to reseed after fires, there are many factors that should be considered. The overriding consideration is the vegetation management objective and priority to use native plants. In trying to make the determination of whether seeding would help attain these objectives, there are other considerations: (1) the structure and diversity of vegetation in the area before it burned, and (2) the presence of noxious weeds in the area and the likelihood of such weeds increasing as a result of a fire. Areas with high species diversity and little potential for noxious weed spread would not be reseeded. Areas that had little diversity and little potential for noxious weed invasion would be seeded with native species exclusively. Areas of low diversity and high potential for noxious weed invasion would most likely be seeded, and non-natives/native seed mixes could be used if it was determined that timing was critical and non-native species would help prevent weed spread. Each fire would have to be evaluated on a case-by-case basis to determine the appropriate actions to meet the established vegetation management objectives. Actions may change over time as a result of new research or other information in accordance with the adaptive management framework outlined in Appendix 3. If seeding with non-natives is deemed necessary, it would be in accordance with the provision stated above (short-lived, nurse crop species with natives in the mix).

The use of aircraft in reseeding operation may be allowed in areas as appropriate. In areas with raptor species, timing would be appropriate to eliminate impacts to these species.

Restoration and Revegetation

Although the terms revegetation, restoration, reclamation, and rehabilitation are often used interchangeably to describe placing vegetation back into an area after disturbance, they are very different processes and concepts. Rehabilitation and reclamation are both ambiguous terms which can imply either restoration or revegetation depending on the situation. Due to the ambiguity of these terms they will not be used here. Restoration and revegetation would both be used in the Monument and, although they can be similar in implementation, are very different concepts. As such, they will be discussed separately and used in situations where appropriate.

Restoration is the process of returning disturbed areas to a natural array of native plant and animal associations. Although this may sound easy, success rates are low and restoration to pre-disturbance condition is often difficult if not impossible to achieve. In order to maximize the success of restoration, projects are most often in areas away from development, with little use, where restoring the natural processes and functions of the vegetation is desired. Restoration not only denotes the return of the vegetation to the site, but also the return of the entire system functions that existed prior to disturbance. This includes the return of soil characteristics, water relations, associated wildlife and non-dominant plants that are often omitted from most projects.

Revegetation is the process of putting vegetation back in an area where vegetation previously occurred. In this case, the species, their density, and their location in relation to one another, may or may not simulate natural conditions. The objective of revegetation projects is to stabilize areas that are disturbed, often from overuse by human activities, and to prevent further degradation of a site. Revegetation is also used to reduce the visual contrast between the disturbed area and the existing landscape where use would prevent a return to predisturbance conditions. This type of project often uses native species that are easy to establish, drought tolerant, and simple to propagate.

Many factors need to be considered when deciding to implement a revegetation or restoration strategy. Each project and area to be treated must be evaluated to determine the appropriate strategy. There are some general guidelines that can be applied to determine which strategy is the most appropriate and how it would be implemented in order to be consistent with the overall vegetation management objectives.

1. Restoration would be the goal whenever possible (i.e., an attempt would be made to return disturbed areas to conditions which promote a natural array of native plant and animal associations).

2. Species used in both restoration and revegetation projects would comply with the non-native plant policy described above (i.e., native plants would be used as a priority).

3. Revegetation strategies would be used in areas of heavy visitation, where site stabilization is desired.

4. Restoration provisions would be included in all surface disturbing projects including provisions for post restoration monitoring of the area. Costs for these activities would be included in the overall cost of the project and would come out of the entire project budget.

5. Priority for restoration or revegetation would be given to projects where Monument resources are being damaged.

These sites would likely be in areas near development and/or heavy visitor use. Although these areas are more likely to be candidates for revegetation projects, careful evaluation of disturbed sites needs to be conducted to include desired future condition of an area. Restoration of areas receiving heavy use may include limits on visitor use in order to promote recovery.

WATER-RELATED DEVELOPMENTS (Non-Culinary)

Water developments could be used as a management tool throughout the Monument for the following purposes: better distribution of livestock when deemed to have an overall beneficial effect on Monument resources, including water sources or riparian areas, or to restore or manage native species or populations. They could be done only when there is no other means to achieve the above objectives and only when the water development would not jeopardize or dewater streams or springs. Developments would not be permitted to increase overall livestock numbers. All developments would be subject to NEPA analysis. Maintenance of existing developments could continue, but may require NEPA analysis and would have to be consistent with the objectives of this Plan.

WILDFIRE MANAGEMENT

Vegetation in the Monument generally evolved with fire as a minor part of the ecosystem, as is evident from the flora and soil characteristics. Periodic fires did occur in the Monument, but little information is known about the frequency or size of these fires. The objective of the fire management program would be to allow fire to play its natural role in the ecosystem. Management ignited fires may be initiated in areas where fire suppression has disrupted natural fire regimes. A full discussion on the use of management ignited fire as a tool is discussed in the **Vegetation Management** section in this chapter. Specific objectives for management ignited fire would be developed prior to its use and with recommendations from the GSENM Advisory Committee.

For all fire activities, the Monument is part of the Color Country Interagency Fire Management Area. This area includes Iron, Washington, Beaver, Kane, and Garfield Counties in Utah, and the BLM Arizona Strip Field Office lands of Mohave County in Arizona. This area was established to share resources in southwestern Utah and northwestern Arizona. An operating plan outlining agency responsibilities and organizational structure for suppression activities is updated annually. Specific zoned areas and policies have been established to indicate how suppression activities would be managed in the specific areas of the Monument. Most of the Monument is included in zones that have little fire suppression activity. Some full suppression zones occur within the Monument, found in areas where protection of structures and property are a concern. Protection of other resources is fully integrated into the fire management strategies for all of the zones in southern Utah and northern Arizona. Heavy equipment use is allowed through authorization of the Monument Manager. Changes in specific zone strategies may be updated on an annual basis to assure appropriate action is taken for fire suppression in a given area. All changes in zones and activities would be coordinated with the Color Country Fire Management Area staff following established processes. A designated fire resource advisor familiar with WSA issues would be consulted on all fires within the Monument that involve WSAs.

WILDLIFE SERVICES

Wildlife Services (formerly Animal Damage Control) activities within the Monument would be limited to the taking of individual coyotes within the immediate vicinity after verified livestock kills, where reasonable livestock management measures to prevent predation had been taken and had failed. Reasonable livestock management measures could include preventative measures to control predation, such as managing where calving occurs, in order to develop improved land management practices. No traps, poisons, snares, or M44s would be allowed in the Monument due to safety concerns and potential conflicts with Monument resources. Consistent with the Proclamation, bear and mountain lion populations would be managed under State regulations through the Division of Wildlife Resources. This includes regulations for hunting and regulations covering depredating bears and mountain lions.

WITHDRAWAL REVIEW

The Proclamation establishing the Monument states: "All Federal lands and interests in lands within the boundaries of this Monument are hereby appropriated and withdrawn from entry, location, selection, sale, leasing, or other disposition under the public land laws..." The Proclamation also states: "Nothing in this Proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the National Monument shall be the dominant reservation." This statement refers to any lands within the Monument that have been removed or withdrawn from operation under some or all of the public land laws (such as mining and/or mineral leasing laws) by statute or Secretarial order prior to the Proclamation. These withdrawals were imposed to achieve a variety of purposes, and they remain in effect until specifically revoked, or otherwise expire. Many were established prior to the enactment of FLPMA in 1976. Table 2.3 summarizes all existing withdrawals in the Monument.

The BLM would continue to review withdrawals within the Monument to determine their consistency with the intent of the withdrawal. Any withdrawals no longer meeting their intended purpose would be terminated under section 204 (l) of FLPMA. Where appropriate, existing withdrawals could also be modified or revoked under Section 204 (a) of FLPMA to implement the objectives of this Plan.

Table 2.3
Withdrawals/Classifications

Number	Type	Acres
248	Public Water Reserves	12,035.25
10	Reclamation Withdrawals	17,496.00
3	Recreation Classifications	7,940.00
1	Withdrawal for FERC Project #2219	131.35
1	Withdrawal for FERC Project #2642	57.14
1	Wolverine Petrified Wood Area	1,520.00
1	Escalante Canyons ONA	1,160.00
1	Devils Garden ONA	640.00
1	North Escalante Canyon ONA	5,800.00
1	The Gulch ONA	3,430.00
1	Phipps-Death Hollow ONA	34,300.00
1	Calf Creek Recreation Area	5,835.00
1	Deer Creek Recreation Area	640.00
1	Dance Hall Rock Historic Site	640.00

SPECIAL EMPHASIS AREAS

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Areas of Critical Environmental Concern (ACEC) are areas within the public lands where special management attention may be required to protect important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards.

The BLM is required to consider designating ACECs as part of the planning process. FLPMA provides for ACEC designation and establishes National policy for the protection of public land ACECs.

The BLM called for ACEC nominations within the Monument in March of 1998. In addition, twenty-two nominations were brought forward from earlier planning efforts. Appendix10 lists the ACEC nominations received for this planning process and describes the ACEC evaluation methods used. After careful evaluation of the resources recognized in each of the nominations, it was determined that their protection would be substantially equivalent under either Monument authority or ACEC designation. Therefore, it was concluded that no ACECs were necessary, and that no ACECs would be designated under the Monument Management Plan.

SPECIAL MANAGEMENT DESIGNATIONS

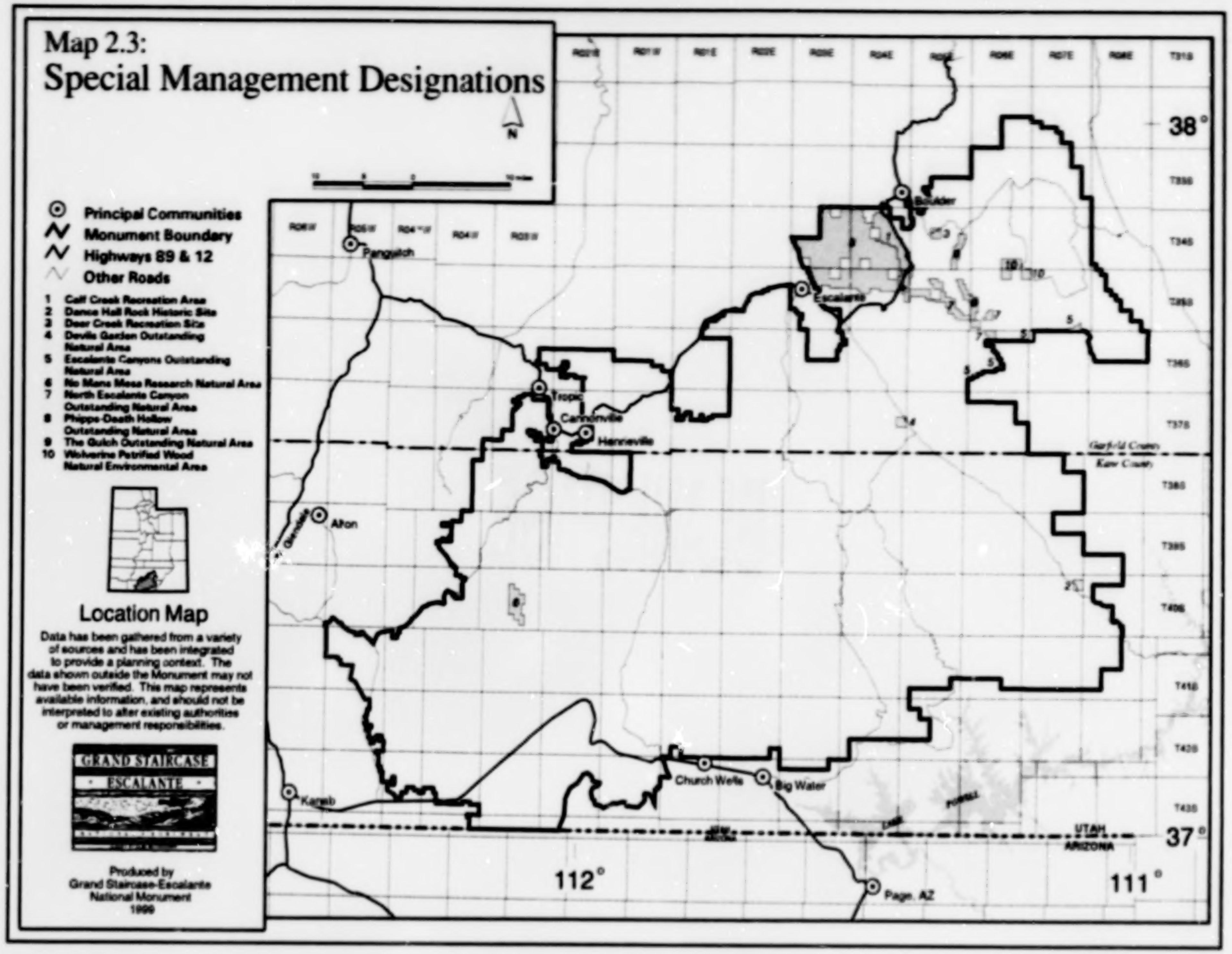
All existing special management designations are consistent with the Proclamation and the objectives of this Plan. It is recommended that the following designations (Map 2.3) would be continued:

- Calf Creek Recreation Area
- Deer Creek Recreation Site
- Devils Garden Outstanding Natural Area
- Dance Hall Rock Historic Site
- Escalante Canyons Outstanding Natural Area (tracts 2, 3, 4 are included in North Escalante Canyon/The Gulch ISA and Tract 1 and 5 are separate)
- North Escalante Canyon Outstanding Natural Area
- The Gulch Outstanding Natural Area
- Phipps-Death Hollow Outstanding Natural Area
- No Mans Mesa
- Wolverine Petrified Wood Area

SPECIAL RECREATION MANAGEMENT AREAS

Special Recreation Management Areas (SRMA) are areas where more intensive recreation management may be needed because the area would be a focal point for visitation (Highway 12 and 89 corridors) or because recreational uses within the area need to be closely managed or limited to prevent conflicts with Monument resources

Map 2.3:
Special Management Designations


N
Principal Communities
Monument Boundery
Highways 89 & 12
Other Roads
1 Calf Creek Recreation Area
2 Dance Hall Rock Historic Site
3 Deer Creek Recreation Site
4 Devils Garden Outstanding Natural Area
5 Escalante Canyons Outstanding Natural Area
6 No Mans Mesa Research Natural Area
7 North Escalante Canyon Outstanding Natural Area
8 Phipps-Death Hollow Outstanding Natural Area
9 The Gulch Outstanding Natural Area
10 Wolverine Petrified Wood Natural Environmental Area
Location Map
GRAND STAIRCASE
ESCALANTE
Panguitch
Boulder
Escalante
Tropic
Cannonville
Henrieville
Alton
Kanab
Church Wells
Big Water
Page, AZ
Garfield County
Kane County
UTAH
ARIZONA
38°
37°
112°
111°
T31S
T33S
T34S
T35S
T36S
T37S
T38S
T39S
T40S
T41S
T42S
T43S

Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Produced by
Grand Staircase-Escalante
National Monument
1999

BEST COPY AVAILABLE

89

BLANK PAGE

70

(Escalante Canyons, Paria/Hackberry, and Fiftymile Mountain).

The Escalante Canyons, Paria/Hackberry, and Paria Canyons and Plateaus would continue to be managed as Special Recreation Management Areas. Fiftymile Mountain, the Highway 12 Corridor, and the Highway 89 Corridor would also be SRMAs (Map 2.4). Management objectives for these areas are outlined below. Management of these areas would be accomplished through subsequent integrated activity plans as discussed in Appendix 3.

Escalante Canyons SRMA

Area Description: The boundary line would follow the geographical topography including all the tributaries to the main Escalante Canyon. It would include trailheads for all the popular routes into the canyons.

Activities include: backpacking, canyoneering, non-motorized boating, and equestrian use.

Desired Future Condition: The overall recreation experience would continue to be primitive, uncrowded and remote. Overall social encounters would remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters would be available, from experiences where parties would be encountered to experience where there would be little or no contact with others. People would be able to make informed decisions about which recreation opportunities meet their desires, and have their expectations met. Monument resources would not be impaired. Potential permit systems could address general public, commercial, and administrative users.

Paria/Hackberry SRMA

Area Description: This area would be bordered on the west by Kitchen Canyon Road, on the east by Cottonwood Canyon Road corridor, on the south by the confluence of Hackberry/Cottonwood Creeks and the Paria River, and on the north by Dixie National Forest, excluding the Skutumpah corridor.

Activities include: backpacking, canyoneering, and equestrian use.

Desired Future Condition: The overall recreation experience would continue to be primitive, uncrowded and remote. Equestrian opportunities would be emphasized in Paria Canyon, while backpacking opportunities would be emphasized in Hackberry Canyon. Potential permit systems could address general public use and commercial users.

Paria Canyons and Plateaus SRMA

Area Description: This area encompasses Buckskin Mountain, West Clark Bench, and Cedar Mountain to connect to the BLM Arizona Strip's "Canyons and Plateaus of the Paria Resource Conservation Area." These areas are located south of Highway 89, with the Monument boundary marking the east boundary.

Activities include: canyoneering, equestrian use, backpacking, hiking, hunting, and scenic touring along the House Rock Valley Road.

Desired Future Condition: The overall recreation experience would continue to be primitive, uncrowded and remote. Overall social encounters would remain low compared to other southwest canyon hiking opportunities. However, a range of social encounters occur. People would be able to make informed decisions about which recreation opportunities meet their desires, and have their expectations met.

Scenic touring on the House Rock Valley Road would accommodate passenger cars most of the time. Use along the road could become moderate.

Management of this SRMA would be in coordination with the Kanab and the Arizona Strip Field Offices.

Fiftymile Mountain SRMA

Area Description: Geographical area called Fiftymile Mountain including trail access points.

Activities include: equestrian use, backpacking, and hunting.

Desired Future Condition: The recreation experience would be primitive, uncrowded and remote. Visitors would not be encouraged to go to this area and commercial outfitting would be extremely limited.

Highway 12 Corridor SRMA

Area Description: The Highway 12 corridor located in the Monument, including Calf Creek Campground and Interpretive Trail.

Activities include: scenic driving, day use hiking, camping, equestrian use, road bicycling, scenic and interpretive viewing.

Desired Future Condition: The recreation experience would focus on learning about geology, history, archaeology, biology, and paleontology, in addition to scenic viewing. Short interpretive trails and scenic overlooks would be developed to encourage visitors to learn more about these Monument resources. Opportunities would accommodate all visitors. Information stations located in Boulder, Escalante, and Cannonville would disseminate educational materials to further information about these resources.

Highway 89 Corridor SRMA

Area Description: Highway 89 corridor located in the Monument. This SRMA would encompass the Paria Movie Set, the old Pahreah townsite, and the Paria Contact Station.

Activities include: scenic driving, day-use hiking, camping, road and mountain bicycling, scenic and interpretive viewing.

Desired Future Condition: The recreation experience would focus on learning about geology, history, archeology, biology, and paleontology in addition to scenic viewing. Short interpretive trails and scenic overlooks would be developed to encourage visitors to learn more about these Monument resources. Opportunities would accommodate all visitors. This corridor would be coordinated with the Vermilion Cliffs Highway Project.

VISUAL RESOURCE MANAGEMENT

The wealth of landforms, geology, colors, elevation changes, and vegetation types in the Monument contribute to its outstanding scenery. The BLM's objective would be to preserve these spectacular scenic assets in "this high, rugged, remote region, where bold plateaus and multi-hued cliffs run for distances that defy human perspective..." (Proclamation 6920, 1996)

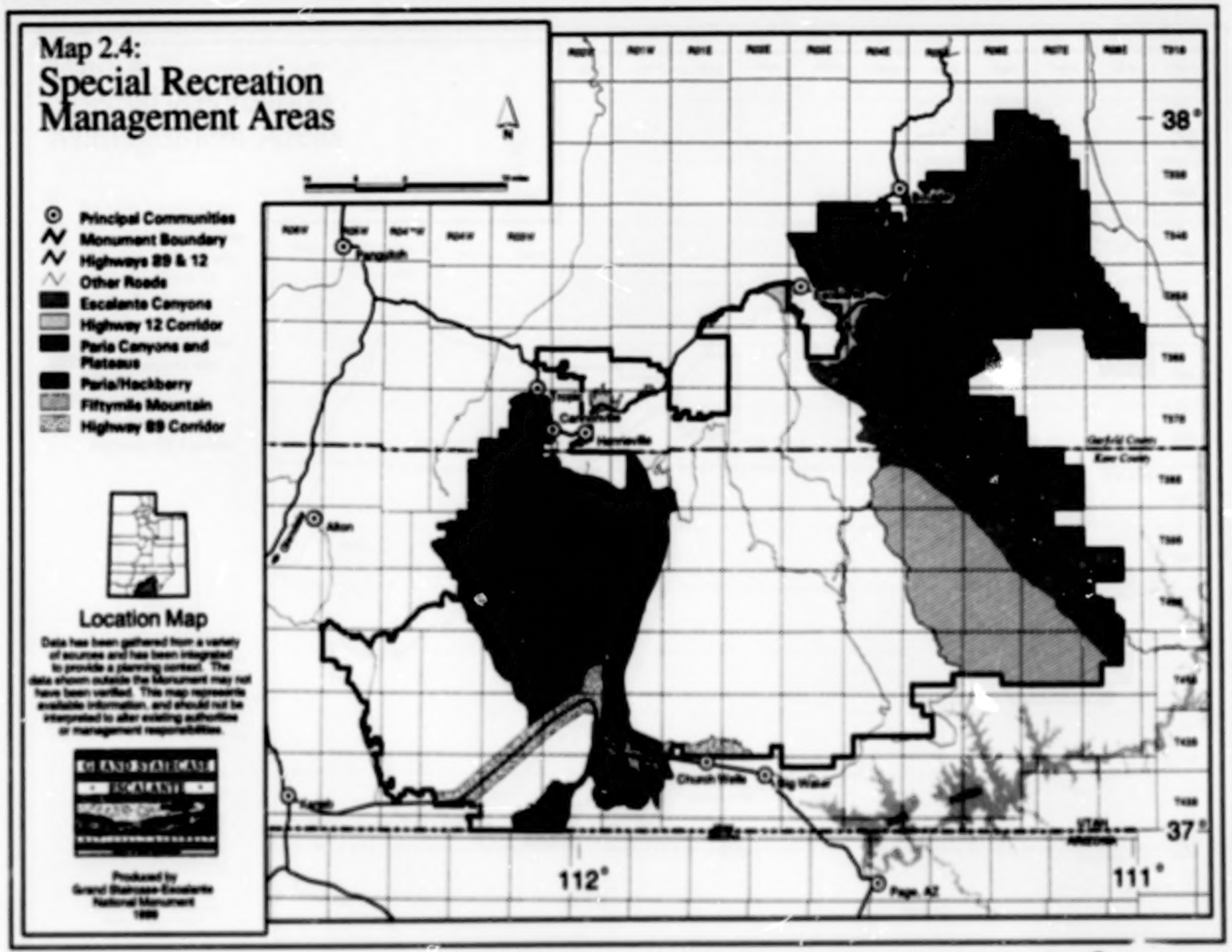
Visual Resource Management (VRM) would be used as one tool to meet this objective (other visual resource requirements are discussed below). An inventory of visual resources, using the procedures specified in the BLM's Visual Resource Inventory Manual H-8410-1, was updated after the Monument was established. The updated visual inventory classes were developed using higher sensitivity ratings due to the high visibility and sensitivity of visual resources associated with a National Monument.

Utilizing the results of the visual resource inventory and other resource allocation considerations, 68 percent of the lands within the Monument would be assigned to VRM Class II and 32 percent of the lands within the Monument would be assigned to VRM Class II, as shown on Map 2.5.

These VRM Class assigments reflect the visual resource analysis inventory upgraded in those areas where the BLM deemed that higher management class objectives were appropriate. This upgrade included shifting all Class IV areas into surrounding Class II or III areas based on public comment and the desire to have higher visual management objectives in those areas. The VRM class objectives are as follows:

Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of

Map 2.4: Special Recreation Management Areas

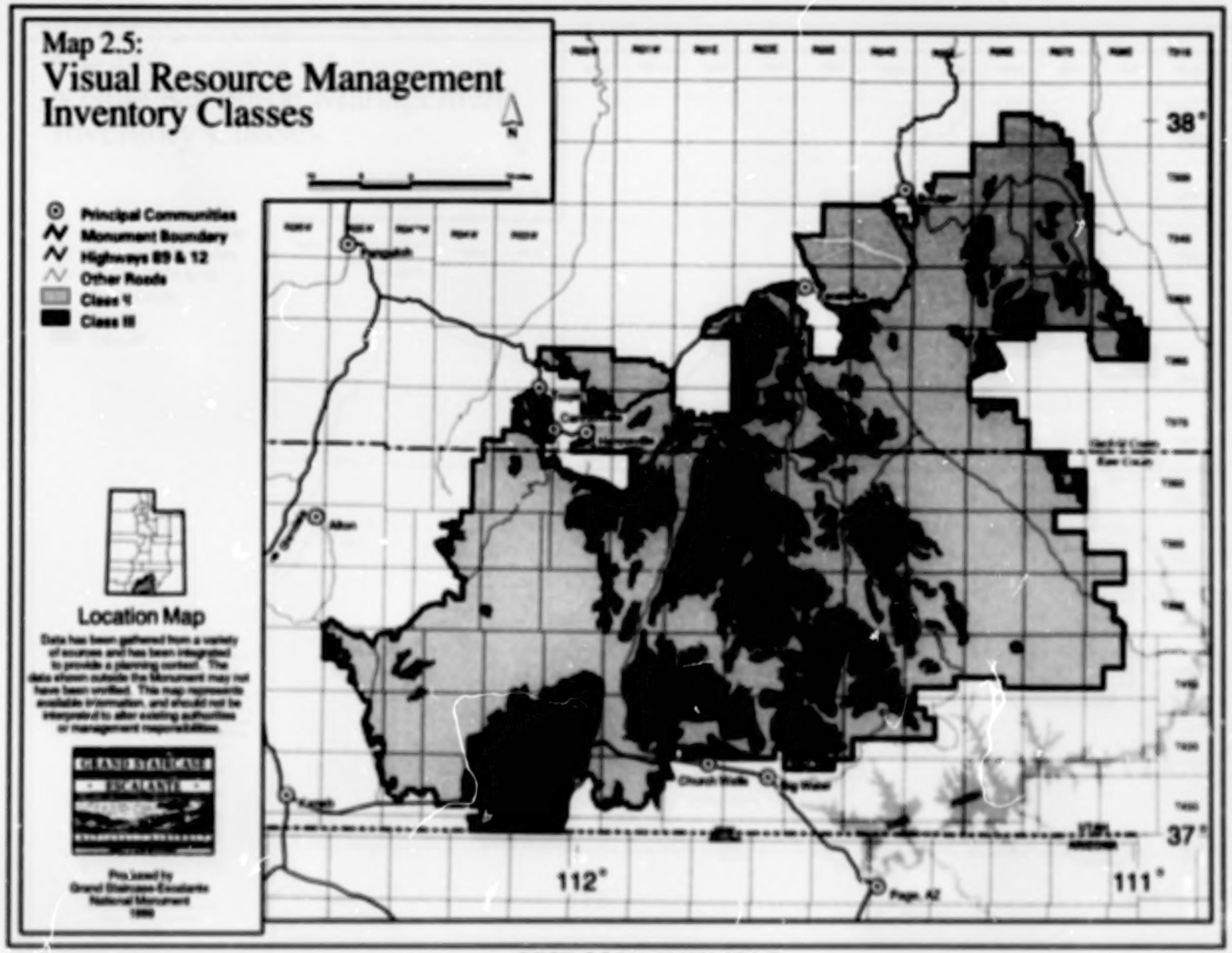


Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Produced by
Grand Staircase-Escalante
National Monument
1999

BEST COPY AVAILABLE

Map 2.5:
Visual Resource Management Inventory Classes



Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Prepared by
Grand Staircase-Escalante
National Monument
1998

BEST COPY AVAILABLE

BLANK PAGE

form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the landscape.

All proposed actions must consider the importance of visual values and must minimize the impacts the project may have on these values. While performing an environmental analysis for projects, the visual resource contrast rating system would be utilized as a guide to analyze potential visual impacts of the proposal. Projects would be designed to mitigate impacts and conform to the assigned VRM Class objective and other objectives including: (1) using natural or natural appearing material as a priority, (2) meeting restoration/revegetation objectives, and (3) complying with the Monument Facilities Master Plan.

Some types of projects such as rights-of-way requests, valid existing rights, or ingress to private land may be allowed on a case-by-case basis in Class II or III areas. Visual resource impacts in these instances would be minimized by such measures as screening, painting, project design, relocation, or restoration.

The Monument Manager may allow temporary projects, such as research projects, to exceed VRM standards in Class II-III areas, if the project terminates within two years of initiation. Rehabilitation would begin at the end of the two year period. During the temporary project, the Manager may require phased mitigation to better conform with prescribed VRM standards.

The VRM classes acknowledge existing visual contrasts. Existing facilities or visual contrasts would be brought into VRM class conformance to the extent practicable when the need or opportunity arises (i.e., rights-of-way renewals, mineral material site closures, abandoned mine rehabilitation).

Areas that are designated Wilderness or designated a wild section of a National Wild and Scenic River in the Monument would be reassigned to Class I VRM Class objectives at the time the law creating Wilderness or National Wild and Scenic River becomes effective.

WILD AND SCENIC RIVERS

In this Plan, 223 miles of river segments would be determined suitable and would be recommended for Congressional designation into the National Wild and Scenic River System. The suitable river segments include: Escalante River 1, 2, 3; Harris Wash; Lower Boulder Creek; Slickrock Canyon; Lower Deer Creek 1, 2; The Gulch 1, 2, 3; Steep Creek; Lower Sand Creek and tributary Willow Patch Creek; Mamie Creek and west tributary; Death Hollow Creek; Calf Creek 1, 2, 3; Twenty-five Mile Wash; Upper Paria River 1, 2; Lower Paria River 1, 2; Deer Creek Canyon; Snake Creek; Hogeye Creek; Kitchen Canyon; Starlight Canyon; Lower Sheep Creek; Hackberry Creek; Lower Cottonwood Creek; and Buckskin Gulch. The suitable segments are shown on Maps 2.6 and 2.7. Rationale for suitability determinations for all segments are found in Appendix 11.

The BLM would manage suitable segments for the preservation of outstandingly remarkable values. River segments determined non-suitable would be managed under the direction and prescriptions of this Plan. While found non-suitable for wild and scenic status, these river segments have values that would be protected under the prescriptions of this Plan.

WILDERNESS STUDY AREAS

Wilderness preservation is part of the BLM's mandate. Pursuant to this mandate, certain areas within the Monument have been identified for Wilderness review. The purpose of these areas, referred to as Wilderness Study Areas (WSAs), is to protect potential wilderness values until further study is completed, recommendations on their suitability for Wilderness designation are

95

BEST COPY AVAILABLE

made, and legislation takes effect to designate them as part of the National Wilderness Preservation System or release them from further study or protection.

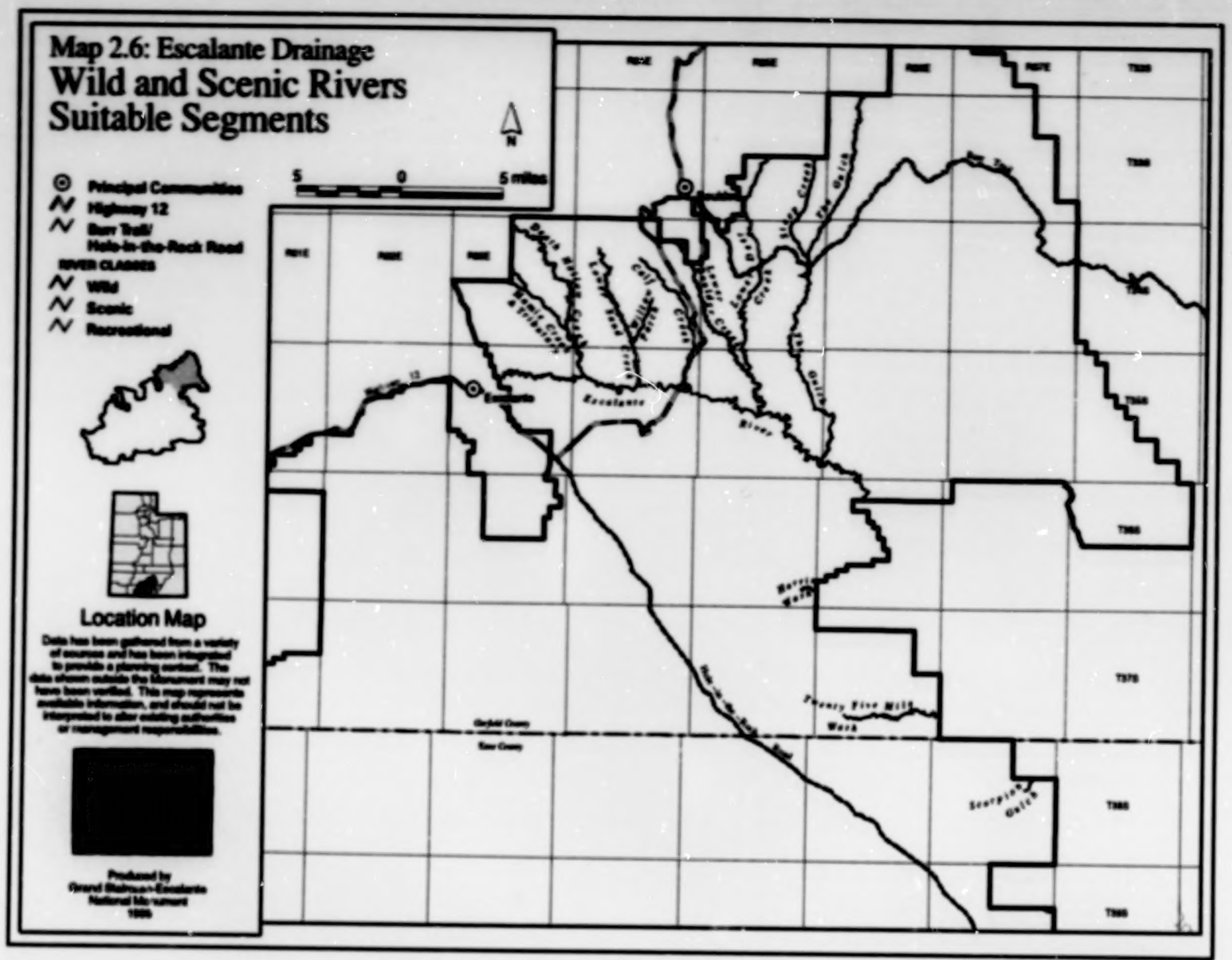
The Monument contains 16 WSAs, totaling approximately 880,857 acres[4], or about 47 percent of the BLM acres in the Monument (Table 2.4 and Map 2.8). These WSAs were identified in a 1978-80 inventory as having wilderness character and thus worthy of further study to determine their suitability for designation as part of the National Wilderness Preservation System. In 1990, the Utah Statewide Final Environmental Impact Statement analyzed the suitability of the WSAs for designation, and in 1991, the Utah Statewide Wilderness Study Report made suitability recommendations to Congress. Further recommendations on wilderness suitability are outside the scope of this Plan. The 1999 Utah Wilderness Inventory and Section 202 Planning Process is described below.

Existing WSAs in the Monument would be managed under the BLM's Interim Management Policy (IMP) and Guidelines for Lands Under Wilderness Review (BLM Manual H-8550-1) until legislation takes effect to change their status. The major objective of the IMP is to manage lands under wilderness review in a manner that does not impair their suitability for designation as wilderness. In general, the only activities permissible under the IMP are temporary uses that create no new surface disturbance nor involve permanent placement of structures. Temporary, non-disturbing activities, as well as activities governed by valid existing rights, may generally continue in WSAs.

Actions allowed under the IMP would also be subject to other BLM laws and policies that govern the use of public land, including management prescriptions or other restrictions developed in this Plan (where they are consistent with the IMP). It is important to note that some uses and activities described in this Plan may not be achievable under the IMP. For example, the Frontcountry Zone overlaps WSAs in several places, generally along Highways 12 and 89 (Map 2.9). The Frontcountry Zone could allow activities such as interpretive structures that would not be allowed in the WSA under IMP. The reason for this inconsistency is that zone boundaries were drawn with topography and dominant terrain features in mind, along with other management considerations such as providing some areas along routes for appropriate facilities such as pullouts. In any case, where conflicts occur between the zone prescriptions and IMP, IMP would take precedence until action is taken by Congress to either designate them or release them from further protection. This Plan and zone prescriptions would apply to any and all public land within the Monument if Congress releases them from WSA status.

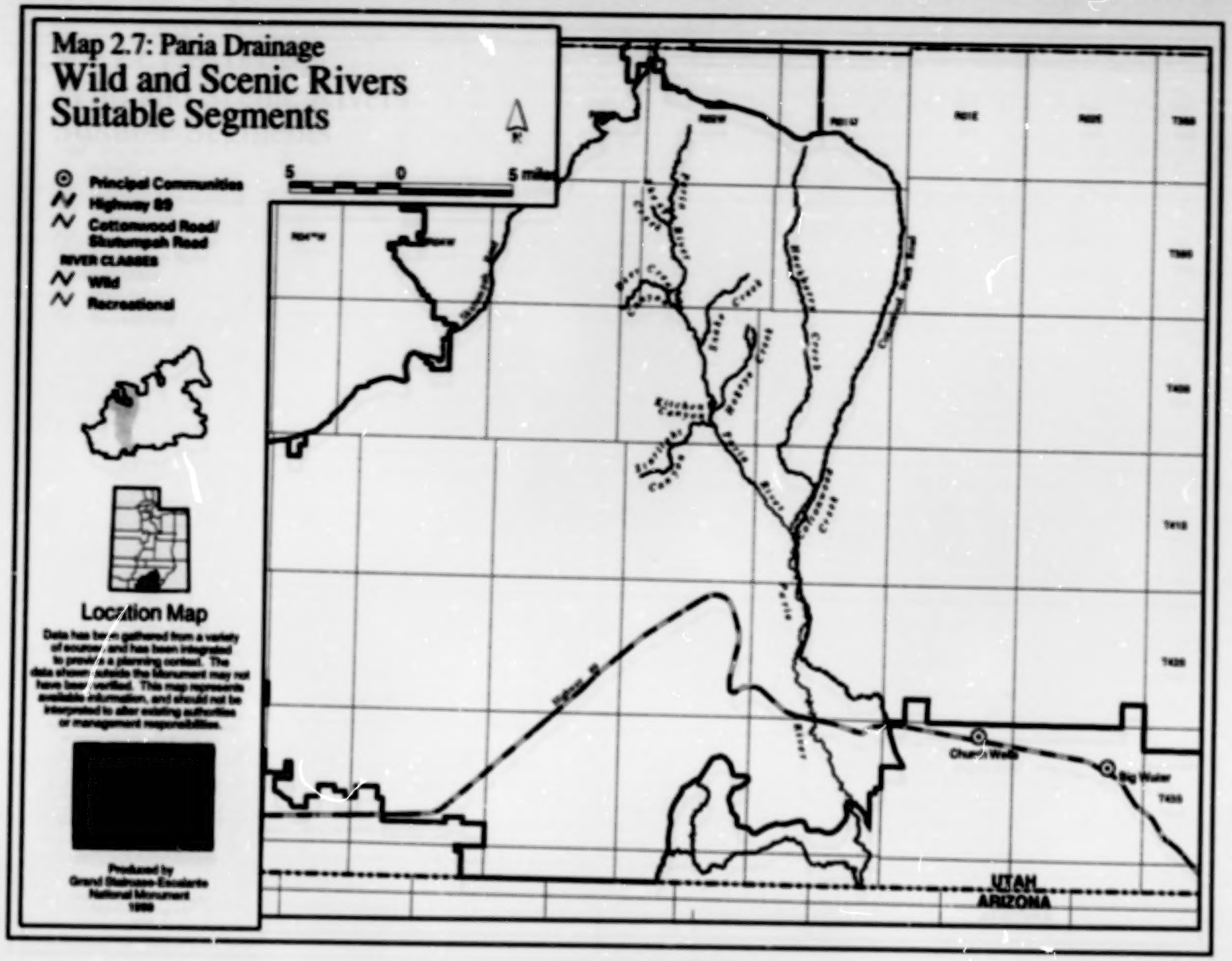
96

BEST COPY AVAILABLE



Map 2.6: Escalante Drainage
Wild and Scenic Rivers Suitable Segments

Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

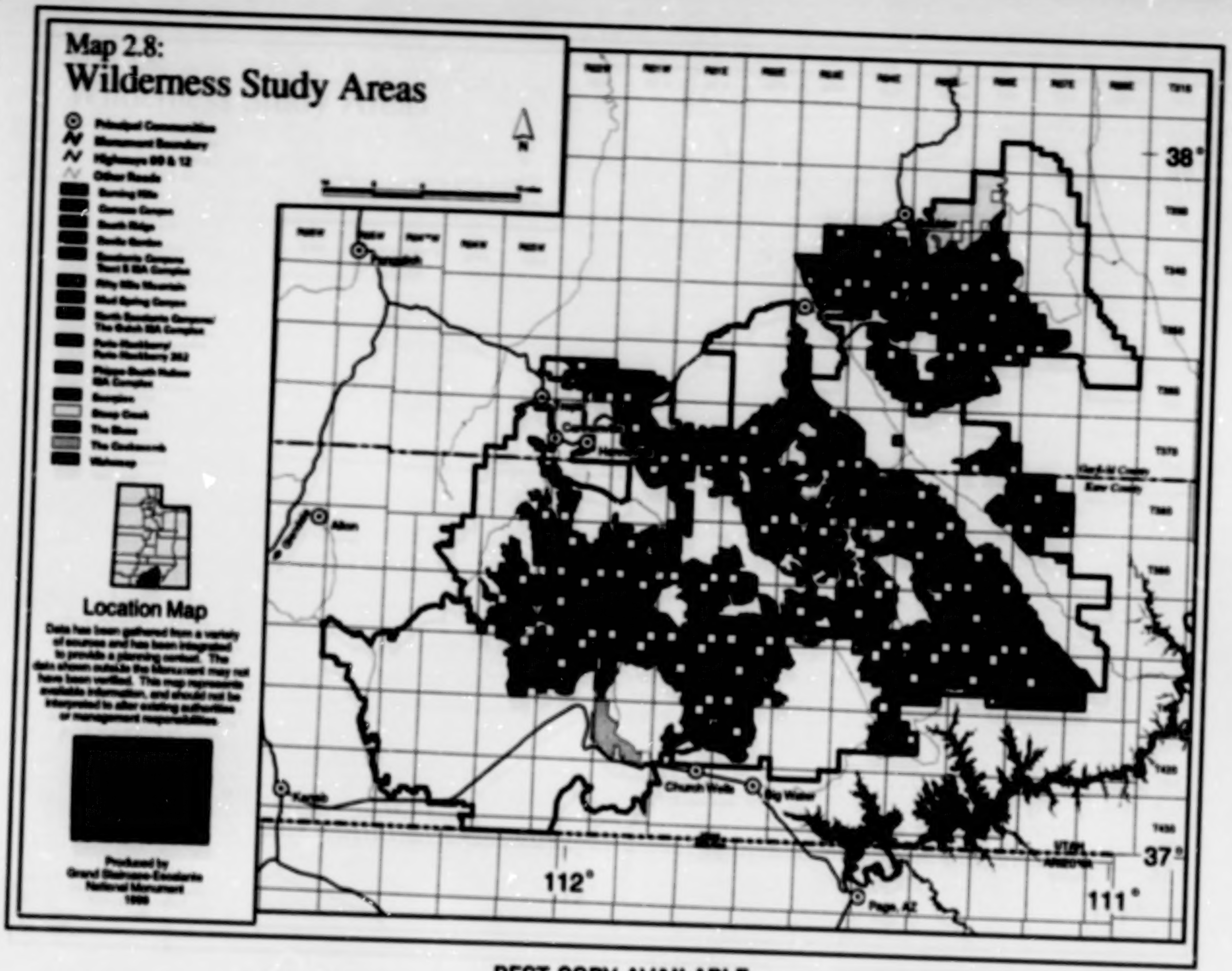


Map 2.7: Paria Drainage
Wild and Scenic Rivers Suitable Segments

Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

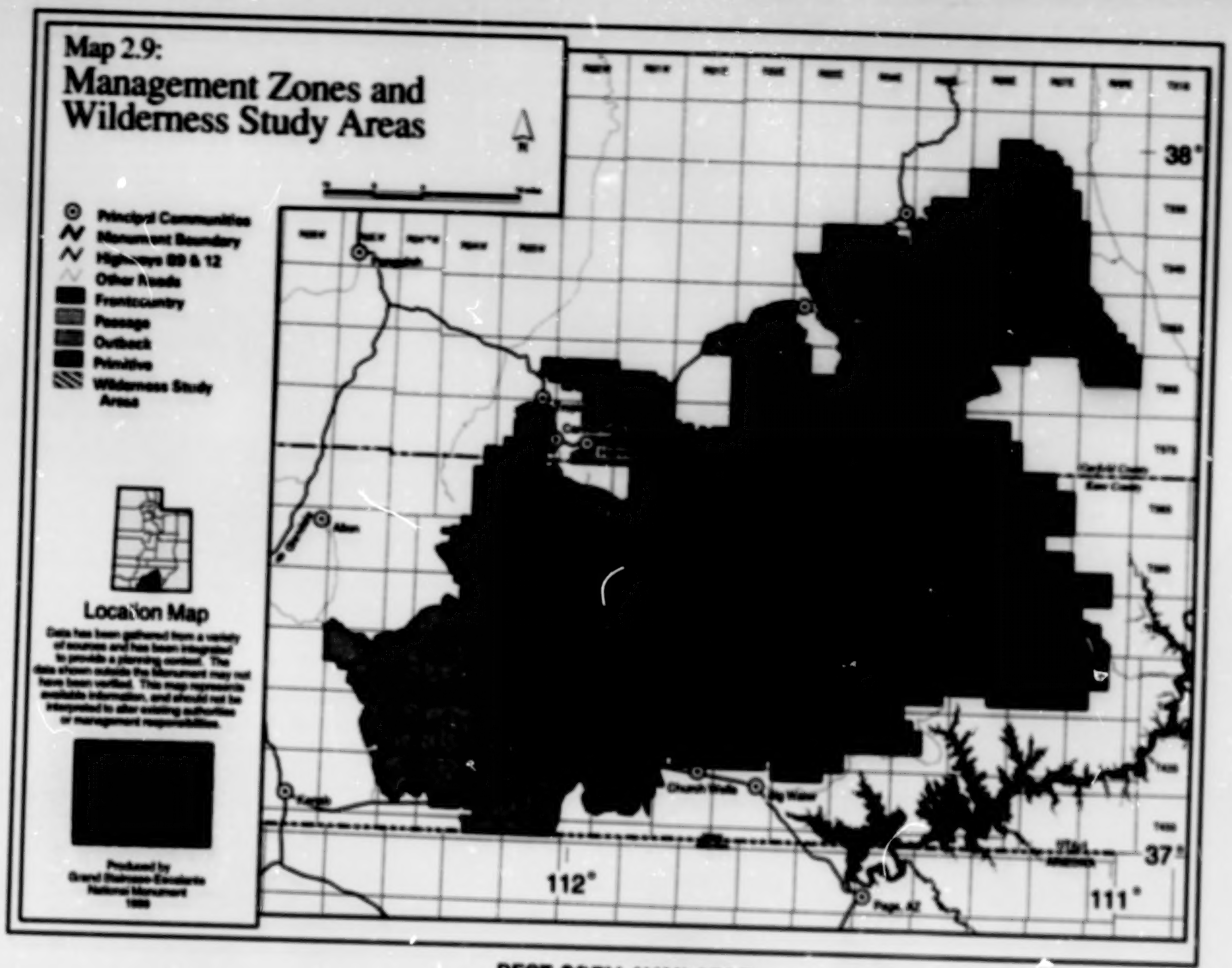
Produced by
Grand Staircase-Escalante
National Monument
1999

BEST COPY AVAILABLE



Map 2.8: Wilderness Study Areas

BEST COPY AVAILABLE



Map 2.9:
Management Zones and Wilderness Study Areas

BEST COPY AVAILABLE

Table 2.4
Wilderness Study Areas

Name	Acres*
Phipps-Death Hollow Instant Study Area (ISA)	42,731
Steep Creek Wilderness Study Area (WSA)	21,896
North Escalante Canyons/The Gulch ISA	119,752
Carcass Canyon WSA	46,711
Scorpion WSA	35,884
Escalante Canyons Tract 1 ISA	360
Escalante Canyons Tract 5 ISA	760
Devils Garden ISA	638
The Blues WSA	19,030
Fiftymile Mountain WSA	146,143
Death Ridge WSA	62,870
Burning Hills WSA	61,550
Mud Spring Canyon WSA	38,075
The Cockscomb WSA	10,080
Paria/Hackberry and Paria/Hackberry 202 WSA	135,822
Wahweap WSA	134,400
* WSA/ISA acres are total BLM acres from the Utah Statewide Wilderness Study Report, October 1991.	
Total acres reported elsewhere in this Plan were generated by a Geographic Information System (GIS) and vary slightly from those reported here.	

THE 1999 UTAH WILDERNESS INVENTORY AND SECTION 202 PLANNING PROCESS

In response to an ongoing debate over whether additional lands in Utah should have been designated for wilderness study as part of the original inventory process under section 603 of FLPMA, a subsequent inventory of BLM lands was begun in 1996 and was completed in early 1999. This effort inventoried areas covered in proposed legislation before Congress at that time (HR 1500 and HR 1745). Out of 3.1 million acres inventoried, the BLM found 2.6 million acres with wilderness characteristics (in addition to the existing WSAs in the State), of which 457,049 acres are within the Monument. In March 1999, the BLM began a planning process under Section 202 of FLPMA to consider whether to include any of these additional lands in new Section 202 WSAs. The 202 process is being carried out separately from the planning process for the Monument, and is expected to be completed in 2000. Thus, recommendations on wilderness suitability for these areas are beyond the scope of this Plan.

Because the reinventory results were not available until February 1999, the Monument Planning Team was not able to consider the inventory in the development of the DMP/DEIS released in November 1998. While the reinventory results were available for the preparation of this Plan, and while they were considered along with other relevant inventories in the planning process, the policy of the BLM is not to manage the additional acres with wilderness characteristics as if they were already in a WSA. Thus, the prescriptions of this Plan would apply to these lands unless additional WSAs are identified. The BLM would continue to give careful consideration before acting affirmatively on any proposals for activities on these lands. The normal requirements of law, such as environmental evaluation under NEPA, apply to any such proposals.

COOPERATION AND CONSULTATION

CONSULTATION WITH NATIVE AMERICAN INDIANS

Although limited in the recent past, use by Native American Indians of the Monument and its resources has been extensive for centuries prior to European contact. Native American Indians continue to use this area for plant collection and pilgrimages, and many places within the Monument are considered important to the continuity of their contemporary cultures.

Consultation for this planning effort has been undertaken with the following tribal groups: Hopi, Zuni, Navajo, Kaibab Paiute, Paiute Tribes of Utah, San Juan Paiute, and Ute. Consultation has consisted of information letters, telephone calls, meetings and field trips. In addition to the planning effort, the BLM has also conducted consultation on BLM projects, Native American Graves Protection and Repatriation Act, and workshops on potential interpretive topics and perspectives. This consultation would continue throughout Plan implementation.

The Monument has entered into active agreements on the collection of ethnographic data with the Hopi and the Kaibab Paiute. In the coming years the BLM would expand this effort to the other tribal groups and expand the breadth of this program.

COOPERATION WITH COMMUNITIES AND OTHER STATE AND FEDERAL AGENCIES

The BLM 1997 Strategic Plan directs the agency to promote collaborative land and resource management to promote community-based planning. Monument Managers are committed to working with nearby communities, counties, and other State and Federal land management agencies to cooperatively accomplish land use objectives within the constraints of Federal law.

Examples of collaborative efforts already in place include BLM participation with the Southern Utah Planning Authorities Council (SUPAC) (a forum where senior Federal, State, and local officials meet regularly to discuss and resolve southern Utah land use planning issues); a quarterly coordination meeting with Kane and Garfield County Commissioners, where Federal land managers are invited to discuss current management projects; and extensive involvement in administering specific projects within the Monument. The Monument Manager has directed staff to be available for any reasonable request to attend informational meetings. The Manager and staff have attended dozens of such meetings throughout the Nation and region to discuss the Monument planning process and to foster continuing public involvement. Chapter 4 describes the public participation process in detail. Chapter 4 also includes a section listing collaborative management objectives.

GSENM ADVISORY COMMITTEE

A Grand Staircase-Escalante National Monument Advisory Committee (chartered under the Federal Advisory Committee Act) would be established to advise Monument managers on science issues and the achievement of management plan objectives. This committee would serve solely as an advisory committee, making recommendations to Monument management. Monument management would evaluate all Advisory Committee recommendations, but would ultimately be responsible for making all final decisions. The primary purpose for the establishment of this committee is to aid in achievement of the management plan objectives, through participation in the adaptive management program. In this capacity it would have several tasks. First would be to review evaluation reports produced by the Management Science Team (comprised of the Assistant Monument Managers for Biological Sciences, Cultural and Earth Sciences, and Visitor Services) and make recommendations on protocols and projects to meet overall objectives. These evaluations would be completed regularly (see Appendix 3, **Implementation and Adaptive Management Framework**) and would compile monitoring data and assess the extent to which management plan objectives are being met. The second task would be to review research proposals and make recommendations on project necessity and validity. The Committee would also make recommendations regarding allocation of research funds through review of research and project proposals as well as needs identified through the evaluation process above. Finally, the Committee could be consulted on issues such as protocols for specific projects (i.e., vegetation restoration methods) or standards for excavation and curation of artifacts and objects. This Committee would meet at least twice a year to accomplish the tasks outlined above.

This Committee would be comprised primarily of scientists, reflecting its science focus. There would be eight scientists covering the areas of archaeology, paleontology, geology, botany, wildlife biology, history, social science, and systems ecology. In addition to scientists, there would be seven other Committee members: one local elected official from each county, one from State or tribal government, one from the environmental community, one educator, one from the outfitter and guide community operating within the Monument, and one from the ranching community, operating within the Monument. These additional members would facilitate communication with adjacent agencies and stakeholders and provide insight into community and stakeholder concerns. Further details regarding frequency of meetings and selection of Committee members would be developed in the charter establishing this Committee.

END NOTES

1. Some government entities may have a valid existing right to an access route under Revised Statutes (R.S.) 2477, Act of June 26, 1866, ch. 262, § 8, 14 Stat. 251 [codified as amended at 43 U.S.C. § 932 until repealed in 1976 by the Federal Land Policy and Management Act of 1976 (FLPMA), Public Law 94-579, Section 706(a), Stat. 2744, 2793 (1976)], which granted "[the right-of-way for the construction of highways over public lands, not reserved for public uses.]" As described in the United States Department of Interior, Report to Congress on R.S. 2477 (June 1993), claims of rights-of-ways under R.S. 2477 are contentious and complicated issues, which have resulted in extensive litigation. See e.g. Sierra Club v. Hodel, 848 F.2d 1068 (10th Cir. 1988); Southern Utah Wilderness Alliance v. Bureau of Land Management, Consolidated Case No. 2:96-CV-836-S (D. Utah, filed Oct. 3, 1996, pending). It is unknown whether any R.S. 2477 claims would be asserted in the Monument which are inconsistent with the transportation decisions made in the Approved Plan or whether any of those R.S. 2477 claims would be determined to be valid. To the extent inconsistent claims are made, the validity of those claims would have to be determined. If claims are determined to be valid R.S. 2477 highways, the Approved Plan would respect those as valid existing rights. Otherwise, the transportation system described in the Approved Plan would be the one administered in the Monument.

2. A "right-of-way" refers to the public lands authorized to be used or occupied pursuant to a right-of-way grant. A right-of-way grant authorizes the use of a right-of-way over, upon, under or through public land for construction, operation, maintenance and termination of a project (from 43 U.S.C. Section 1761-1771, 43 CFR Ch. II, 2800.0-5).

3. An easement is a non-possessory, non-exclusive, interest in land which specifies the rights of the holder and the obligation of the Bureau of Land Management to use and manage the lands in a manner consistent with the terms of the easement. (from 43 U.S.C. 1732, 1733, 1740, 43 CFR 2920.0-5)

4. A lease is an authorization to possess and use public land for a fixed period of time. (from 43 CFR 2920.0-5)

5. Alaska National Interest Lands Conservation Act of 1980 (16 U.S.C. 3210). The courts have found that this provision applies nationally. Also found in BLM Manual 2800.06B.

6. WSA acres reported here are larger than reported in the DEIS because the boundary adjustment (Public Law 105-355) included more acres of the Wahweap WSA within the Monument.

Chapter 3

Environmental Consequences

INTRODUCTION

This chapter analyzes the environmental impacts or effects of the management decisions presented in Chapter 2. Since this Proposed Plan describes an overall management framework, and in most cases does not propose specific on-the-ground projects or actions, the environmental consequences are often expressed in comparative, general terms. Quantitative analysis has been included when possible based on specific decisions proposed in Chapter 2, as well as estimates of reasonably foreseeable actions described below. In most cases, subsequent analysis would be required to implement resource management decisions. More detailed or site-specific studies and appropriate environmental documents will be prepared in compliance with the National Environmental Policy Act (NEPA) and its implementing regulations, as needed.

TYPES OF IMPACTS

Impacts analyzed in this chapter include direct, indirect, and cumulative effects of the proposed actions to the extent they were identifiable for analysis. Where applicable, the short-term or long-term nature of these effects are described.

Direct effects result from activities planned or authorized by the Bureau of Land Management (BLM) and occur at the same time and place. Indirect effects are caused by these actions and occur later in time or farther removed in distance, but are still reasonably foreseeable.

Cumulative effects occur when there are multiple effects on the same values. They are incremental effects of proposed activities or projects, when combined with past, present, and future actions. As stated in 40 CFR 1508.7, a "... 'cumulative impact' is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time... ." The cumulative effects discussed in this chapter address resources for which direct and indirect impacts have been described earlier.

NEPA requires that the analysis of a Proposed Action in an Environmental Impact Statement address the following three topics:

1. The relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity: Short-term impacts occur during or immediately after project placement and may continue for a period of up to five years. Long-term impacts occur beyond the first five years. Impacts described in this chapter are usually direct and long-term, unless otherwise indicated.
2. Irreversible or irretrievable commitments of resources: Irreversible commitments of resources are the result of actions in which changes to resources are considered permanent. Irretrievable commitments of resources result from actions in which resources are considered permanently lost. A discussion of these impacts is included in the **Irreversible or Irretrievable Commitments of Resources** section at the end of this chapter.
3. Unavoidable adverse effects: These are the effects that cannot be avoided if the proposal and mitigation measures (incorporated as the design features of the this Plan) are implemented. These effects are described throughout this chapter in each of the resource and use impact sections. Mitigation and/or the nature of the planned actions are designed to minimize these effects. Many of these stipulations for mitigation are included in Appendix 4, **Standard Procedures for Surface Disturbing Projects or Proposals**.

The impacts of all decisions described in this Proposed Plan are analyzed. However, only those impacts and actions which are believed to have reasonably foreseeable impacts are discussed in detail. Programs or resources that were determined, through scoping and interdisciplinary evaluation, to have minimal, insignificant impacts as a result of the planned actions are not discussed in detail. A brief discussion of these topics is included at the end of this chapter.

ANALYSIS ASSUMPTIONS AND GUIDELINES

The following assumptions and guidelines were used to guide and direct the analysis of environmental consequences:

1. This Proposed Plan would be implemented substantially as described in Chapter 2.
2. The BLM would have sufficient funding and personnel to implement the Plan.
3. The planning period for the analysis is the next 15 years. Short-term impacts are those that would occur during the first five years of plan implementation. Long-term impacts are those that would occur beyond the first five years.
4. Measures would be taken to protect and encourage recovery of species listed as Federally endangered or threatened.
5. The geographic area that has the potential to be cumulatively affected by a combination of decisions and actions by the BLM and other agencies or persons is primarily within the boundaries of Kane and Garfield Counties, Utah, except for economic impacts, which are discussed for a five county region.
6. Current upward trends in recreation use would continue as discussed in Chapter 3 of the Draft Environmental Impact Statement (DEIS).
7. Specific actions to protect human life would be taken regardless of the management criteria in this Plan.
8. Livestock grazing would continue to be governed by applicable laws and regulations.
9. The Plan would be subject to valid existing rights and other existing authorizations in accordance with applicable laws and regulations.
10. Any projects authorized by the BLM would be required to obtain necessary permits and authorizations from other Federal, State and local agencies.
11. Research would continue to be funded, at least at current levels.
12. Impacts associated with the use of facilities, routes, and trails usually occur within ¼ mile due to ease of access and use patterns.
13. Acreages reported in the analysis are Geographic Information System (GIS) numbers and not legal acreages.
14. Wild and Scenic River miles used in this analysis are for all suitable segments within the boundary of the Monument. The miles reported in Chapter 2, and in the Wild and Scenic River Appendix 11, include segments in the Paria Wilderness Area. It does not include small segments in the Escalante Canyons area that are being handled by Glen Canyon National Recreation Area, since the majority of these river segments are located on lands administered by the them.

INCOMPLETE OR UNAVAILABLE INFORMATION

There is less than complete knowledge about many of the relationships and conditions of wildlife species, vegetation associations, the economy, and communities. The ecology, inventory, and management of arid ecosystems is a complex and developing discipline. The biology of specific species prompts questions about population dynamics and habitat relationships. The interaction among resource protection, the economy, and rural communities is also poorly understood and is the subject of much debate.

Although there is a substantial amount of credible information about the general topic of arid ecosystems management, the lack of specific information creates uncertainty for managers. Still, in development of this environmental impact statement, the central relationships and basic data are sufficiently established for the formulation of decisions for this Plan. The best available information was used to evaluate and formulate these decisions. When encountering a gap in information, the question implicit in the Council on Environmental Quality (CEQ) regulations on incomplete or unavailable information was posed: Is this information "essential to a reasoned choice among alternatives"? (40 CFR 1502.22(a)). While additional information would often add precision to estimates or better specify a relationship, the basic data and central relationships are sufficiently established such that new information would be unlikely to completely reverse or nullify understood relationships. Though new information would be welcome, no missing information was considered to be essential to a reasoned choice among the decisions or alternatives as they were constituted.

Nonetheless, the precise relationships between the amount and quality of habitat or the location of other Monument resources is far from certain; there is a certain level or risk inherent in the management of any ecosystem. All other things being equal, the lesser the information, the greater the risk attributable to incomplete knowledge. That relationship is an impetus for the implementation and adaptive management framework described in Appendix 3 of this Plan. Should there be new scientific information regarding the protection of resources in the Monument, there are provisions for changing management practices to reflect the new information, as long as actions are consistent with the overall direction of this Plan. This adaptive management process - which is guided by monitoring, research, and GSENM Advisory Committee oversight - provides additional assurance that incomplete information would not undermine proper management of the ecosystem.

MITIGATION

Mitigation is important in the design and implementation of any action. In general, mitigation is a measure taken to cause an action to become less harsh or less severe. From the CEQ Regulations (40 CFR 1508.20), mitigation includes:

- Avoiding the impact altogether by not taking a certain action or parts of an action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments

Mitigating measures have been incorporated and evaluated for activities and decisions described in Chapter 2 of this Plan and throughout the discussion of environmental consequences in this chapter. For the actions analyzed in this Plan, mitigating measures are addressed as design features of the proposed actions themselves, primarily through land allocations, management practices, and standards as described in Chapter 2.

REASONABLY FORESEEABLE ACTIONS

A Reasonably Foreseeable Action (RFA) is a potential future action where specific decisions cannot be determined during development of an overall plan. RFAs are used to help predict impacts. The RFAs are not actual allocations or decisions, but a best estimate or a guideline for what actions may be taken in the future, given the overall guidance in this Plan. Table 3.1 provides the RFAs that have been used in this analysis.

RFAs are developed through interdisciplinary team discussion using past and present information to make an informed estimate of the potential action and its impacts. In developing the RFAs, the BLM considered current resource conditions and trends, the restrictions or opportunities provided by the planned actions, and known or potential projects and proposals in and around Grand Staircase-Escalante National Monument (GSENM). Predictions of potential projects are based on professional judgement regarding approximate project locations, general site conditions and design features commonly applied to such projects, and do not definitively forecast the outcome of site-specific analysis required prior to implementation of any project. For example, this Plan does not make specific decisions on the number or length of new rights-of-way to private land because the need for such rights-of-way is uncertain at this time. However, an estimate of such requests over the next 15 years can be made for analysis purposes. These estimates are based on knowledge of the amount of private inholdings that do not have access currently, and estimates of miles of rights-of-way needed to access these parcels. Based on this information, an estimate of 3.5 miles was made for analysis purposes.

Table 3.1 Reasonably Foreseeable Actions (RFAs)[1]
(RFAs are not actual decisions, but are estimates of actions used to help predict impacts)

Management Activity	Projects over 15 years	Disturbed Acres	Total Disturbance
Recreation sites	32 sites	0.5 acres/site	16 acres
Designated primitive camping areas[2]	35 camping areas	2 acres/area	70 acres
Communication sites	2 sites	1 acre/site	2 acres
Utility rig[illegible]t-of-way (ROW) [illegible]	1 ROW	150 acres/ROW	150 acres
Utility [illegible] (small)	20 ROWs	5 acres/ROW	100 acres
Road rights-of-way	3.5 miles	2.4 acres/mile	8.4 acres
Water developments	10 developments	1 acre/site	10 acres
Vegetation restoration methods	20,000 acres	1,000 - 3,000 acres/year	20,000 acres

[1] Estimates of disturbance for valid existing rights (e.g., mineral development) are not included because insufficient information is currently available to predict where resources will be discovered or the extent of development that may occur (refer to the **Full Field Development** section in the DEIS).

[2] Includes estimates of areas that would be designated in the Frontcountry and Passage Zones where camping would be allowed in designated areas only. This estimate does not include areas that may be needed elsewhere to correct resource damage.

PROPOSED PLAN IMPACT ANALYSIS

The impact analysis for resources and uses follows. A discussion of cumulative impacts is included in each resource section under **Summary of Effects**. An overall discussion of cumulative impacts of actions outside the scope of this Plan is also included in the **Cumulative Impacts** section at the end of this chapter.

In response to public comments, the impact analysis provided is more detailed for some aspects than that provided in the DEIS. For example, additional projections of reasonably foreseeable actions (RFAs) and more explicit analysis of spatial impacts of routes have been provided for this Plan. Where that additional detail would have varied appreciably among the DEIS alternatives, additional analysis for those alternatives has been provided (see Chapter 5, ACC-14). Where that additional detail would not vary appreciably by alternative (e.g., RFAs that are likely to occur under all alternatives, or the analysis of visitor impacts in the vicinity of existing recreational facilities), additional analysis of the DEIS alternatives has not been provided. Since these impacts would not have varied by alternative, more detailed analysis of such impacts by alternative would not have contributed to the selection of this Plan or altered the central relationships upon which the DEIS and this Plan are based.

IMPACTS ON PALEONTOLOGICAL RESOURCES

Introduction

Paleontological sites contain a wealth of information about prehistoric life and environments during the last part of the Paleozoic Era and throughout the Mesozoic Era. The sequence of rocks found on the Kaiparowits Plateau contains one of the best and most continuous records of Late Cretaceous terrestrial life in the world. Protection of these resources is a priority in management of the Monument. The locations of many paleontological resources within the Monument are yet unknown. However, studies show that Monument lands sustain widespread and varied paleontological resources.

Summary of Effects

Impacts to paleontological resources result directly from surface disturbing activities such as: vehicle and human use; construction of recreational facilities and water developments; and vegetation restoration activities. Indirect impacts also result from these activities by causing erosion and allowing access for unauthorized collection. There is a potential for cumulative surface disturbance of approximately 360 acres from reasonably foreseeable activities such as recreation facilities, rights-of-way, and water developments over the 15 year planning horizon. Much of the surface disturbance associated with recreational facilities would occur in areas already disturbed by existing camping or other uses. Subsequently, acres of disturbance from these activities would likely be less than are reported here. In addition, visitor and livestock use has the potential to cause surface disturbance which is difficult to estimate. Vegetation restoration methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations and would occur primarily in areas already disturbed. These areas would be surveyed prior to project initiation. This Plan would afford substantial protection to paleontological resources through: closure of vehicular travel off of designated routes; avoidance when placing facilities; monitoring and surveying around current facilities and transportation corridors; surveying prior to vegetation restoration and other projects; and restrictions on visitor use (e.g., allocations, barriers, temporary closures).

Direct and Indirect Effects of Proposed Actions

Collections

Paleontological resources in the Monument are protected from collection by the Proclamation and this Plan. Impacts from unauthorized collection would be substantially reduced by this restriction. In sensitive areas where collection of fossils occurred prior to Monument designation, interpretive information would be developed and disseminated in order to educate the public about the sensitivity and importance of these resources. Information could include interpretive displays, brochures, visitor center displays and information on the website.

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent disturbance or clearing of vegetation and associated soil erosion. These provisions include: no use of heavy equipment and no travel off of designated routes. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting paleontological resources in the Monument could help educate

Commercial Filming cont.

people about these resources, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in the *Recreational Facilities and Use* section.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way directly impacts paleontological resources by destroying fossils during leveling and other installations activities. These activities indirectly impact resources through clearing vegetation and biological soil crusts, which allows for erosion of soil and further degradation of fossils. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). Although these sites are allowed on 654,034 acres, areas with known, unique paleontological resources would be avoided. In other areas, sites would be surveyed prior to construction. In the event that unique fossils are found in these areas, the location of sites or rights-of-way would be moved to avoid these impacts. In other cases, where ubiquitous fossils are present, samples may be taken to record their presence and the site may be allowed. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of the distribution and type of paleontological resources in the Monument, or which result in stabilizing or preserving paleontological resources at risk of being damaged or destroyed, would be encouraged. Monitoring initiated as part of the adaptive management framework (Appendix 3) would provide information regarding the condition of paleontological resources in the Monument. It would also provide a mechanism for alteration in management if degradation was determined to be occurring.

Surface disturbing research activities have the potential to damage or destroy paleontological resources. Surface disturbing research projects would be evaluated by the BLM, and the GSENM Advisory Committee would be consulted for recommendations, on whether research proposals warrant exceptions, whether they could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. The Monument science program would ensure that scientific resources are not only available for current research opportunities, but that certain scientific resources are preserved in place for future study. Prior to initiation of these projects, excavation and curation of paleontological features may be initiated, if deemed necessary.

Livestock Grazing

Livestock grazing has the potential to impact paleontological resources directly by trampling, and indirectly through accelerating erosion. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the

110

Livestock Grazing cont.

evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on paleontological resources would be assessed. Monitoring for sensitive paleontological resources would be initiated when necessary to determine if damage or destruction were occurring. If these impacts were found, fences or other barriers would be constructed, or other measures would be taken to prevent further impacts from livestock grazing.

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) directly impacts paleontological resources by destroying fossils during leveling, construction, drilling for posts, and/or other installation activities. These activities indirectly impact resources through clearing vegetation and biological soil crusts, and from increased visitor use around sites, allowing for erosion of soil and further degradation of fossils. Unauthorized collection may also occur from increased use surrounding these sites. Projected increases in use would result in an increase of this type of impact. This type of impact is typically limited to within ¼ mile of recreation sites.

Currently there are 36 recorded paleontological sites within ¼ mile of existing recreation facilities and 106 known sites within ¼ mile of trails. These sites would be evaluated for impacts and monitoring plots would be established when the unique nature of fossils warrants close attention. Additional surveys would be conducted in these areas to ensure impacts to unknown resources are not occurring. Due to the large number of paleontological sites present, monitoring on all sites may not be possible, resulting in damage or destruction of paleontological resources. If degradation from visitor use is found in these areas, sites may be closed or allocations initiated to reduce the number of people in the area.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to impacts to paleontological resources from trampling or unauthorized collection. Group size restrictions of 12 and 25 respectively would reduce the potential for these impacts. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated in these zones for resource protection purposes and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas, through the implementation of an allocation system, would also help to reduce impacts from this type of use.

Although there is the potential for 32 new recreation sites disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres), areas with known, unique paleontological resources would be avoided. In other areas, sites would be surveyed prior to construction. In the event that unique fossils are found in these areas, the location of recreation sites would be moved to avoid these impacts. In other cases, where common, ubiquitous fossils are present, samples may be taken to record their presence, and the site may be allowed with interpretive displays and signs used to educate the public on the protection of paleontological resources.

Recreational Facilities and Use cont.

It is reasonably foreseeable that 35 new primitive camping areas would be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Surface disturbance, monitoring, curation and excavation would occur as described previously. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to paleontological resources would be addressed.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would afford substantial protection to paleontological resources from the direct effects of vehicle use off of designated routes (e.g., destruction, damage), and from the indirect effects (e.g., unauthorized collection, erosion) of continued cross-country vehicle access. There is the potential for direct and indirect impacts to paleontological resources from unauthorized travel of off-highway vehicles (OHVs) and bicycles off these routes. Enforcement, as described in the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these designated routes.

Use of 888 miles of designated routes may contribute to unauthorized collection. It is assumed that this type of impact on paleontological resources is generally limited to within ¼ mile of routes. Projected increases in use would increase the potential for these impacts. Currently there are 245 paleontological sites known to occur within ¼ mile of designated routes. As described for recreation sites, unique paleontological resources would be monitored and/or surveyed to determine impacts, and appropriate actions (e.g., barriers, excavation and curation, allocations) would be taken when determined necessary for protection.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). There are currently 12 known paleontological sites within 50 feet of these routes, which may result in damage or destruction of these resources. These sites would be monitored and protected as described previously.

Maintenance of designated routes has the potential to directly and indirectly cause impacts as described for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of designated routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes. In the limited cases where maintenance activities would occur outside of the existing disturbance, areas would be inventoried and sites would be protected as described above for *Recreational Facilities and Use*.

Transportation cont.

Use of 192 miles of administrative routes throughout the Monument has the potential to indirectly impact paleontological resources by causing erosion. Erosion control structures would be installed when necessary to minimize these impacts. Maintenance of these routes would be the minimum necessary to keep them accessible to high clearance vehicles. However, any maintenance that requires new surface disturbance would require inventories and appropriate protection as described above. Unauthorized collection, and impacts to 28 sites within ¼ mile, are not likely to occur since use along these routes would be limited and only by authorized users.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 includes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion in these areas. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some continued impacts to paleontological resources.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. These treatments would be used to establish a natural range of native plant associations as stated in the vegetation management objective. Surveys would be conducted in these areas for paleontological resources prior to restoration, and areas with sensitive paleontological resources would be avoided, as described previously for other surface disturbing activities. Project level NEPA analysis would also be completed prior to initiation of these projects.

Water Issues

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted in cases where an overall benefit to Monument resources could be demonstrated. There is the potential for disturbance, damage, or destruction of paleontological resources from surface disturbing construction, and from impacts associated with the subsequent concentration of use in the immediate vicinity of some water developments, such as troughs or impoundments. Areas for potential development would be surveyed for paleontological resources prior to construction, and if resources were found, the sites would be relocated. Maintenance of existing water developments has the potential to disturb, damage, or destroy paleontological sites through surface disturbing maintenance activities. Project level NEPA analysis and inventories for these resources could be required prior to the authorization of maintenance activities.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's Interim Management Policy and Guidelines for Lands under Wilderness Review (IMP) would prevent most surface disturbance on 880,857 acres currently designated as Wilderness Study Areas (WSAs). This would prevent degradation of paleontological resources from the activities described above in these areas.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Fires occur infrequently in the Monument and do not directly impact paleontological resources. Emergency use of equipement, such as chaining, for fire restoration has the potential to impact paleontological sites and resources directly by destroying fossils, or indirectly by clearing vegetation and biological soil crusts, which allows for erosion. These methods would not be used for management ignited fires and are only allowed under limited circumstances as described in the **Vegetation Restoration Methods** section of Chapter 2. Even though it is impossible to determine where emergency fire restoration would be needed, surveys would be conducted for paleontological resources (as well as other resources) in burned areas, prior to use of equipment. Areas with sensitive paleontological resources would be avoided, as described previously for other surface disturbing activities.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to paleontological resources would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Riparian Resources Program, Special Status Species Program, Visual Resource Management (VRM), Weed Management, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON ARCHAEOLOGICAL AND HISTORIC RESOURCES

Introduction

Monument lands sustain an extensive array of varied, non-renewable prehistoric archaeological sites, including clusters of unique sites which represent contact between the Fremont and Anasazi people in the Kaiparowits region. The distances, aridity, cliffs, and terraces have shaped the communities which are located on the periphery of the Monument. Early Mormon pioneers left many historic objects including: trails, inscriptions, and remnants of towns. The locations of many cultural resource sites within the Monument are yet unknown. The data on historic sites have largely been developed through oral histories and other anecdotal information over the last two years and have not been verified in the field. The majority of the archaeological sites documented to date are close to routes due to easy accessibility. Numerous unidentified sites are expected to occur throughout the Monument.

Summary of Effects

Damage, degradation, and destruction of archaeological and historic resources result directly from surface disturbing activities such as: vehicle, human, and livestock use; construction of facilities, communication sites, and water developments; maintenance of routes; wildfires; and vegetation restoration methods or any other ground disturbing activity. Indirect impacts also result from these activities, by causing erosion and allowing access for unauthorized collection. There is a potential for cumulative surface disturbance of approximately 360 acres from reasonably foreseeable activities such as recreation facilities, rights-of-way, and water developments over the 15 year planning horizon. Much of the surface disturbance associated with recreational facilities would occur in areas already disturbed by existing camping or other use. Subsequently, acres of disturbance from these activities would likely be less than are reported here. In addition, visitor and livestock use have the potential to cause surface disturbance which is difficult to estimate. Vegetation restoration

Summary of Effects cont.

methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations and would occur primarily in areas already disturbed. These areas would be surveyed prior to project initiation. This Plan would offset most of these impacts to archaeological and historic resources through: closure of vehicular travel off of designated routes; avoidance when placing facilities; monitoring and surveys around current facilities and transportation corridors; surveys prior to vegetation restoration or other projects; identification of sensitive resources for avoidance during fire suppression; restrictions on visitor use (group size, allocations, barriers, temporary closures); and visitor education. In areas where impacts could not be offset, excavation and curation of archaeological and historic resources would be initiated.

Direct and Indirect Effects of Proposed Actions

Collections

Archaeological and historic sites continue to be protected from destruction and artifact collection by existing laws and regulations and the Proclamation. Regardless, unauthorized collection of archaeological resources continues. In areas of known destruction or damage, sites would be closed where possible, and/or excavated as a last resort, and the artifacts curated to document the information contained in these sites. Monitoring and inventory work would be initiated in areas determined to be sensitive and high priority, which would help determine where resources and impacts occur. Information on the location of archaeological resources would be protected to maintain site integrity and prevent looting of these sites. Interpretive information would be developed and disseminated in order to educate the public about the sensitivity and importance of these resources. This would be done to prevent inadvertent damage to archaeological and historic resources. Information could include interpretive displays, guided tours, brochures, visitor center displays and information on the website.

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent disturbance or clearing of vegetation and associated soil erosion. These provisions include: no use of heavy equipment and no travel off of designated routes. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting these resources in the Monument could help educate people about these resources, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in the *Recreational Facilities and Use* section.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way and road rights-of-way directly impacts archaeological and historic resources by destroying artifacts and structures during leveling and other installations activities. These activities indirectly impact resources through clearing vegetation and biological soil crusts, allowing for erosion of soil and further degradation of sites. Often it is not evident that sites are present until such activities are initiated. It is reasonably foreseeable that 1 large and 22 small communication

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way cont.

or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed in the Monument over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). Although these sites are allowed on 654,034 acres, areas with known archaeological and historic resources would be avoided. In other areas, sites would be surveyed prior to and during construction. In the event that artifacts are found, the location of sites would be moved to avoid these impacts. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing knowledge of the distribution and type of archaeological and historic resources in the Monument, or which result in stabilizing or preserving at risk resources, would be encouraged. Monitoring initiated as part of the adaptive management framework would provide information regarding the condition of archaeological and historic resources in the Monument and would provide a mechanism for alteration in management if degradation was determined to be occurring.

Surface disturbing research activities have the potential to damage or destroy artifacts, rock art, and structures in archaeological and historic sites. Surface disturbing research projects would be evaluated by the BLM, and the GSENM Advisory Committee would be consulted for recommendations on whether research proposals warrant exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. The Monument science program would ensure that scientific resources are not only available for current research opportunities, but that certain scientific resources are preserved in place for future study. If the surface disturbing research were allowed to proceed, excavation and curation of archaeological sites would be initiated.

Livestock Grazing

Livestock grazing has the potential to impact archaeological and historic resources directly by trampling artifacts, mixing cultural materials, pushing over standing structures, rubbing on rock art panels, concentrating use in alcoves, and surface disturbance from construction of range facilities. Indirectly, livestock use has the potential to impact archaeological and historic resources by accelerating erosion, leading to the destruction of standing structures and uncovering buried artifacts, which may subsequently be trampled. Additionally, concentrating use around range facilities has the potential to impact sites in close proximity to these facilities. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on archaeological and historic resources would be assessed. Monitoring for sensitive archaeological and historic resources would be initiated when necessary to determine if damage or destruction were occurring. If these impacts were found, fences or other barriers would be constructed, or other measures would be taken to protect archaeological and

Livestock Grazing cont.

historic resources. Construction of new range facilities would require inventory and would avoid archaeological and historic sites, with project level NEPA analysis completed for all projects.

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) directly impacts archaeological and historic resources by destroying artifacts, structures and sites during leveling, construction, drilling for posts and/or other installation activities. These activities indirectly impact resources through clearing vegetation and biological soil crusts, and from increased visitor use around sites, allowing for erosion of soil and further degradation of sites. Unauthorized collection may also occur from increased use surrounding these sites. Projected increases in use would result in an increase of this type of impact. This type of impact is typically limited to within ¼ mile of recreation sites due to short travel distances for most visitors, ease of access, and ability to take artifacts away in vehicles.

Currently there are 65 recorded archaeological and historic sites within ¼ mile of existing recreation facilities and 265 within ¼ mile of existing trails. These sites would be evaluated for impacts, and monitoring plots would be established when sensitivity of the sites warrants close attention. Surveys would continue in these areas to locate additional sites for evaluation and protection. Due to the large number of archaeological and historic sites present, monitoring on all sites may not be possible. This has the potential to result in damage or destruction of these resources. If degradation were found from visitor use in these areas, sites may be closed or allocations initiated to reduce the number of people in the area.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to impacts to archaeological and historic resources from trampling or unauthorized collection. Group size restrictions of 12 and 25 respectively would reduce the potential for these impacts. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated in these zones for resource protection purposes and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas through the implementation of an allocation system would also help to reduce impacts from this type of use.

Although there is the potential for 32 new recreation sites disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres), areas with known archaeological and historic sites would be avoided. Some archaeological and historic sites may be developed for interpretation in order to educate the public about these resources. This would occur in sites where increased use could be accommodated without site degradation and where sensitive artifacts and structures are properly documented. For all proposed sites, surveys would be completed prior to construction, and areas with archaeological and historic resources would be avoided.

Recreational Facilities and Use cont.

Delineation of these sites and installation of fences and interpretive signs would limit the size of the disturbed area and increase awareness of archaeological and historic resources, resulting in a reduction in site degradation. Concentrating use into a smaller area, where use could be accommodated without impacting sensitive resources, reduces impacts to archaeological and historic resources over a larger area of the Monument.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing up to 70 acres. Surface disturbance, monitoring, curation and excavation would occur as described previously for designated camping areas. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to archaeological and historic resources would be addressed.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would afford substantial protection to archaeological and historic resources from the direct effects of cross-country vehicle use (degradation, destruction and damage to artifacts and sites). Protection of archaeological and historic resources from indirect effects (unauthorized collection and erosion from surface disturbance) would also occur as a result of these restrictions. There is the potential for direct and indirect impacts to archaeological and historic resources from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Use of 888 miles of designated routes may contribute to the unauthorized collection of archaeological and historic artifacts. It is reasonably foreseeable that this type of impact on archaeological and historic sites is generally limited to within ¼ mile of these routes, due to use patterns and accessibility. Projected increases in use would increase the potential for this type of impact. Although inventories for sites have not been completed throughout the Monument, there are 597 archaeological and historic sites currently recorded as occurring within ¼ mile of designated open routes. As described for recreation sites, sensitive archaeological and historic sites would be monitored and/or surveyed to determine impacts, and appropriate actions (barriers, excavation and curation, allocations) would be taken when determined necessary for protection.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of

Transportation cont.

routes). Visitors would be encouraged to use areas already disturbed, and new clearing would be prohibited. There are currently 8 known archaeological and historic sites within 50 feet of these routes, which may result in damage or destruction of these resources. These sites would be monitored and protected as described above.

Maintenance of designated routes has the potential to directly and indirectly cause impacts to archaeological and historic resources as described for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes (see the **Maintenance** section in Chapter 2). In the limited cases where maintenance activities would occur outside of the existing disturbance, areas would be inventoried and sites would be protected through excavation, curation or avoidance. If routes were originally constructed through archaeological sites, continued degradation of the site could occur from maintenance activities. Steps would be taken in these cases to excavate and curate the remaining site contents to reduce further degradation and loss of information.

There are 192 miles of administrative routes throughout the Monument which have the potential to indirectly impact archaeological and historic resources by causing erosion. Erosion control structures would be installed when necessary to minimize these impacts. Maintenance of these routes would be the minimum necessary to keep them accessible to high clearance vehicles. However, any maintenance that requires new surface disturbance would require inventories and appropriate protection as described above. Unauthorized collection by authorized users of administrative routes would be unlikely to affect the 81 known or other undocumented sites that may occur within ¼ mile of these routes.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion in these areas. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some continued impacts to archaeological and historic resources in the interim until routes are closed and restored.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. Although these areas have had vegetation manipulation in the past, resource inventories may not have been conducted. Moreover, surface disturbance from chaining may have revealed sites previously hidden. Surveys would be conducted for archaeological resources prior to any future restoration, and areas with sensitive archaeological resources would be avoided, as described for other surface disturbing activities. Project level NEPA analysis would also be completed prior to initiation of these projects.

Water issues	It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted in cases where an overall benefit to Monument resources could be demonstrated. There is the potential for disturbance, damage, or destruction of archaeological and historic resources from surface disturbing construction and impacts associated with the subsequent concentration of use in the immediate vicinity of some water developments, such as troughs or impoundments. Areas for potential development would be surveyed for archaeological and historic resources prior to construction, and if resources were found, the sites would be relocated. Maintenance of existing water developments could disturb, damage, or destroy archaeological and historic sites through surface disturbing maintenance activities. Project level NEPA analysis and inventories for these resources could be required prior to the authorization of maintenance activities.
Wilderness Study Area Protection	Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the degradation of archaeological and historic resources from the activities described above.
Wildfire Management, Management Ignited Fires, and Fire Restoration	Direct impacts to archaeological and historic resources (particularly rock art and structures with wood components) from wildfire could occur from direct combustion of these materials and obliteration or destruction of rock art. Because cross-country travel is prohibited, impacts to cultural or archeological sites could be greater if limited access hindered wildfire suppression activities. Although emergency exceptions for wildfire suppression could be granted, the lack of maintained routes in certain areas and restrictions on the use of some types of equipement could delay or affect response. However, because fire is not a significant risk in most of the Monument, these impacts would be minimal. The limited impacts which could occur would be offset by the protection that archaeological resources would receive from disturbance associated with motorized cross-country travel and access. If archaeological and historic sites with wood structures and/or rock art were close to travel corridors and sensitive in nature, they could be identified in the fire management zones for suppression activities as described in Chapter 2, **Wildfire Management**. Emergency use of equipment, such as chaining, for fire restoration has the potential to impact archaeological and historic sites and resources directly by damaging and destroying artifacts and mixing cultural materials. These methods would not be used for management ignited fires and are only allowed under limited circumstances as described in the **Vegetation Restoration Methods** section of Chapter 2. Even though it is impossible to determine where emergency fire restoration would be needed, surveys would be conducted for archaeological and historic resources (as well as other resources) in burned areas, prior to use of equipement. Areas with sensitive archaeological and historic resources would be avoided, as described for other surface disturbing activities.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to archaeological and historic resources would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Riparian Resources Program, Special Status Species Program, VRM, Weed Management, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON BIOLOGICAL SOIL CRUSTS

Introduction

Biological soil crusts perform many important ecological functions including: preventing soil erosion, fixing atmospheric nitrogen, improving plant soil-water relationships, contributing to nutrient cycling, and providing sites for seed germination and plant growth. These soil crusts are particularly sensitive to ground disturbance, especially compression which has the potential to result from foot traffic by animals or humans. It is probable that impacts to biological soil crusts have impacts on many other resources and environmental factors, including soils, water quality, nutrient cycling, and on vegetation and the other organisms it supports.

Summary of Effects

Direct impacts on biological soil crusts occur primarily from surface disturbing activities, such as construction of facilities, and trampling by people, livestock, and wildlife. These activities also lead to an increased chance for erosion and the introduction of weeds species. There is a potential for cumulative surface disturbance of approximately 360 acres from reasonably foreseeable activities such as recreation facilities, rights-of-way, and water developments over the 15 year planning horizon. Much of the surface disturbance associated with recreational facilities would occur in areas already disturbed by existing camping or other uses. Subsequently, acres of disturbance from these activities would likely be less than are reported here. In addition, visitor and livestock use have the potential to cause surface disturbance and damage to biological soil crusts, which is difficult to estimate. Vegetation restoration methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations and would occur primarily in areas already disturbed. Restrictions on surface disturbing activities, active control of noxious weeds, and controls on visitor and vehicle use in the Monument would contribute to the increased protection afforded by the actions in this Plan. Additionally, increased research on restoration ecology and biological soil crusts has the potential to discover new methods to restore disturbed areas to pre-disturbance condition.

Direct and Indirect Effects of Proposed Actions

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent disturbance or clearing of biological soil crusts, vegetation and associated soil erosion. These provisions include: no use of heavy equipment and no travel off of designated routes. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting the sensitivity of dry climate biological soil crusts could help educate people about the this resource, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as

Commercial Filming cont.

described below in *Recreational Facilities and Use*. Mechanisms to control visitor use as described in that section would be initiated to reduce these potential impacts.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way directly impacts biological soil crusts by physically removing these soils and vegetation during leveling and other construction activities. Erosion resulting from soil crust and vegetation loss and soil destabilization during these activities has the potential to further degrade biological soil crusts. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed over the next 15 years disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). Although these sites are allowed on 654,034 acres, the small amount of surface disturbance and low number of potential sites reduce the chance that biological soil crusts would be affected by these activities. In all instances, sites would be surveyed prior to construction. In the event sensitive soil crusts were found, the location of sites may be moved to avoid these impacts. Project level NEPA analysis would be completed for all projects, taking into account impacts on biological soil crusts. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of the distribution of biological soil crusts in the Monument, or which would help restore and protect these associations, would be encouraged. Monitoring initiated as part of the adaptive management framework (Appendix 3) would provide information regarding the condition of vegetation in the Monument, and would provide a mechanism for alteration in management if degradation to biological soil crusts was determined to be occurring.

Surface disturbing research activities have the potential to degrade biological soil crusts. Surface disturbing research projects would be evaluated by the BLM, and the GSENM Advisory Committee would be consulted for recommendations on whether research proposals warrant exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. Increased research in the Monument could increase awareness of the sensitivity of biological soil crusts, but may cause increased visitation, contributing to impacts discussed for *Recreation Facilities and Use* below.

Livestock Grazing

Livestock use has the potential to directly impact biological soil crusts by trampling and indirectly by accelerating erosion, leading to further damage. These crusts are especially susceptible in erodible soils and during dry seasons when the brittle nature of these crusts and loose soil result in easy destruction by trampling. Grazing on many of the allotments in the Monument occurs during winter and the early spring months, reducing the potential for impacts from these grazing activities. Additionally, concentrating use around range facilities

Livestock Grazing cont.

has the potential to cause impacts to biological soil crusts in close proximity to these facilities. Livestock grazing within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on biological soil crusts would be considered. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition and structure and function of rangelands, including functioning biological soil crusts. Healthy rangelands also prevent erosion and further degradation of soils. Monitoring in conjunction with grazing management would provide information on changes in vegetation and soil condition, allowing for changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3).

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) directly impacts biological soil crusts through physical removal. Indirect impacts to biological soil crusts occurs from visitor use around sites, which results in surface disturbance and erosion of soil. Additionally, visitors are a primary vector for the transport of noxious weed species. Construction of new sites has the potential to introduce weeds into areas where they have not previously been found. Impacts from weeds are described below in the *Weed Management* section. Projected increases in use would result in an increase of these impacts. Impacts from use in association with recreation sites are generally concentrated to within ¼ mile of facilities.

Recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to direct and indirect impacts, but limited access and use in these zones would not contribute substantially to these impacts. Group size restrictions of 12 and 25 respectively would help reduce the potential for these impacts. Pack stock use also has the potential to contribute to the introduction of weed species, but requirements for weed free hay on BLM lands would reduce this possibility. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated in these zones for resource protection purposes and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas, through the implementation of an allocation system, could also help to reduce impacts from this type of use.

There is the potential for the construction of 32 new recreation sites disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres). Direct and indirect impacts from construction and use of these facilities would be as described previously. Surveys would be completed prior to construction, and areas with sensitive soil crusts would be avoided. The small number of new sites and subsequent surface disturbance would not contribute substantially to impacts on biological soil crusts. Delineation of these sites and installation of fences

Recreational Facilities and Use cont.

and interpretive signs would limit the size of the disturbed area, reducing the direct effects of trampling and indirect effects of erosion. Again, the concentration of disturbance and use into areas where increased use can be accommodated without causing degradation of sensitive resources, would protect larger areas of the Monument from dispersed use disturbance.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Most of these areas would be designated where camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts to biological soil crusts. Direct and indirect effects of the surface disturbance and use of these areas would be as described previously for other facilities.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to biological soil crusts would be addressed.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Management and Emergency Exceptions** sections in Chapter 2). This would afford protection to biological soil crusts from being crushed and destroyed and from the indirect effects of these activities, which includes erosion. Additionally, use of vehicles, such as OHVs and bicycles, facilitate the transport of noxious weed species, resulting in impacts as described below in the *Weed Management* section. The combination of soil crust removal and weed introduction has the potential to have long-term detrimental effects on biological soil crusts and native vegetation associations. There is the potential for direct and indirect impacts on biological soil crusts from unauthorized travel of vehicles off of designated routes. Enforcement, as described in the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Use of 888 miles of designated routes may result in people traveling by foot off of these routes, directly and indirectly affecting biological soil crusts by trampling, compaction of soil, and surface disturbance, causing erosion. It is assumed that this type of impact on biological soil crusts is generally concentrated within ¼ mile of routes due to use patterns and ease of access. Projected increases in use would increase the potential for this type of impact.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This could directly and indirectly impact biological soil crusts by crushing and by causing surface disturbance. Visitors would be encouraged to use areas already disturbed, and new clearing of vegetation would be prohibited. However, some impacts to biological soil crusts may still occur.

Transportation cont.

Direct impacts may occur from activities associated with the maintenance of designated open routes, as described for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of designated open routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes, protecting biological soil crusts from burial and destruction. In the limited cases where maintenance activities would occur outside of the existing disturbance, areas would be inventoried and maintenance achieved in a manner that would minimize impacts to sensitive biological soil crusts.

Although there are fewer miles of administrative routes (192 miles), lack of maintenance on these routes may increase degradation and erosion. Erosion control structures would be installed when necessary to minimize these impacts.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion. An opportunity for the study of restoring biological soil crusts exists in these areas. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some impacts to biological soil crusts.

Vegetation Management

Native plants would be used as a priority for all seeding projects in the Monument. This would afford biological soil crusts protection from displacement and competition from aggressive non-native species.

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this reclamation work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. These activities would only be used to restore a natural range of native plant associations in the Monument, directly and indirectly improving the condition of native vegetation throughout the Monument. For example, a seeding which is primarily crested wheatgrass may be burned and seeded to promote the restoration of native plant associations in the area. Research on the restoration of biological soil crusts would be initiated in these areas and project level NEPA analysis would be completed prior to initiation.

Removal of forestry products would only occur on the 23,950 acres designated for fuelwood cutting, or in other areas where deemed necessary to restore a natural range of native plant associations. These areas are typically pinyon and juniper woodlands which, as a result of impacts from livestock, wildlife and fire suppression, have spread and contain little understory and herbaceous growth, and often little soil crust development. There is the potential for trampling of biological soil crusts during collection of forestry products exists, though the small amount of area where there activities would be allowed would not contribute substantially to impacts.

Vegetation Management cont.

Restoration and revegetation provisions, as discussed in Chapter 2, are required for all surface disturbing activities in the Monument as part of the project planning process. These provisions would provide substantial protection from noxious weed invasion, erosion, and further degradation of surrounding biological soil crusts.

Water Issues

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when necessary for the protection of Monument resources. The indirect effects of surface disturbing activities would be the same as for other surface disturbing activities and associated use, as described previously. Maintenance of existing water developments has the potential to cause some minor surface disturbance. Project level NEPA analysis would be completed prior to the authorization of any construction. These water developments would most often be used to displace use away from sensitive riparian habitat, which is more easily affected by cattle and wildlife. Biological soil crusts in and around the areas where use is displaced could be affected from increased trampling and degradation of these soil crusts.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure and function of biological soil crusts in surrounding areas. Disturbance of biological soil crusts can actually lead to increased probability of weed invasion in many areas. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands and further disrupt biological soil crusts. Conversion of vegetation structure by noxious weed species can make re-establishment of biological soil crusts difficult if not impossible. These species are spread by a variety of means, some of which (e.g., vehicles and foot traffic) are directly attributable to human actions and are discussed in those sections. Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. Continued degradation of biological soil crusts has the potential to occur in areas left untreated.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the degradation of biological soil crusts from the activities described above.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. In areas where annual weed species are prevalent, destruction and degradation of biological soil crusts would result from fires. Although vegetation in these areas would quickly regrow, the loss of biological soil crusts in the area may lead to an increased chance for invasion of weed species and associated impacts. Impacts from fire suppression activities can have a profound effect on biological soil crusts by crushing and disturbing the soil, changing the way water moves across the landscape, and causing erosion. These effects are difficult to reverse, especially in dry climates such as the Monument's.

Fire would be allowed to play its natural role in the Monument as much as possible, while protecting private land and providing for public safety. Most of the Monument is located in fire management areas which have

Wildfire Management, Management Ignited Fires, and Fire Restoration cont.

little suppression activity. This would allow fires to reach a larger size, but would protect biological soil crusts from the surface disturbing effects associated with motorized travel off of designated routes during suppression activities. Areas such as recreation sites and wooden structures would be protected from fire, but most have access routes to them. Emergency use of equipment, such as chaining, for fire restoration has the potential to impact biological soil crusts by clearing vegetation and biological soil crusts which allows for erosion. These methods would not be used for management ignited fires and are only allowed under limited circumstances as described in the **Vegetation Restoration Methods** section of Chapter 2. Impacts to biological soil crusts from management ignited fires and emergency fire restoration projects would be evaluated prior to implementation of these activities in the Monument.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to biological soil crusts resources would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Collections, Riparian Resources Program, Special Status Species Program, VRM, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON VEGETATION

Introduction

Steep canyons, limited water, seasonal flood events, unique and isolated geologic substrates, and large fluctuations in climatic conditions have all influenced the composition, structure, and diversity of vegetation associations of the Monument. Vegetation is a fundamental and vitally important element among the Monument's biological resources. Impacts to other resources are often an indirect result of clearing vegetation. Where impacts to vegetation lead to soil erosion, that erosion has the potential to damage or degrade archeological, paleontological, and historic resources, as well as water quality and air quality, as described in impact discussions for those resources. Impacts to Federally listed plant species are included in a separate section, though many of the impacts are similar in nature.

Summary of Effects

Impacts to vegetation resources result directly from the removal of vegetation for the construction of facilities (e.g., recreation, communication) and from trampling by visitors, livestock or wildlife. Indirect impacts include changes in composition of vegetative associations brought about by invasion of weeds and surface disturbance leading to erosion and habitat degradation. There is a potential for cumulative surface disturbance of approximately 360 acres from reasonably foreseeable activities, such as recreation facilities, rights-of-way, and water developments, over the 15 year planning horizon. Much of the surface disturbance associated with recreational facilities would occur in areas already disturbed by existing camping or other uses. Subsequently, acres of disturbance from these activities would likely be less than are reported here. In addition, visitor and livestock use have the potential to cause surface disturbance which is difficult to estimate. Vegetation restoration methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations and would occur primarily in areas already disturbed. Limited amounts of surface disturbance, restrictions on surface disturbing activities,

Summary of Effects cont.

controls on visitor and vehicle use, monitoring of vegetation condition, restoration and revegetation provisions, and an active noxious weed removal program, all contribute to an increase in protection for vegetation in the Monument as a result of actions in this Plan.

Direct and Indirect Effects of Proposed Actions

Collections

The unauthorized collection of objects, including plants and plant parts, is prohibited by the Proclamation and this Plan. Casual collection (picking flowers, leaves, cones, etc.) in the Monument has not been a problem in the past, and is not anticipated to contribute to the impacts of vegetation associations. Interpretive information would be provided to visitors in high-use areas concerning the sensitivity of vegetation resources and the prohibition on collection to prevent inadvertent damage to vegetation resources.

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent disturbance or clearing of vegetation and associated soil erosion. These provisions include: no use of heavy equipment, no travel off of designated routes, no work in excess of 10 days, and no degradation of riparian habitat. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting the sensitivity of dry climate vegetation associations could help educate people about the this resource, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in the *Recreational Facilities and Use* section. Mechanisms to control visitor use as described in that section would be initiated to reduce these potential impacts.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way directly impacts vegetation associations by physically removing vegetation and biological soil crusts during leveling and other installations activities. Erosion resulting from vegetation loss and soil destabilization during these activities has the potential to further degrade vegetation associations. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed in the Monument over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). Although these sites are allowed on 654,034 acres, the small amount of surface disturbance and low number of potential sites reduce the chance that vegetation associations would be affected by these activities. In all instances, sites would be surveyed prior to construction. In the event that sensitive vegetation associations were found, the location of sites may be moved to avoid these impacts. Project level NEPA analysis would be completed for all projects, taking into account impacts on vegetation. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of the distribution of plants and plant associations in the Monument, or which would help restore and protect these associations, would be encouraged. Monitoring initiated as part of the adaptive management framework would provide information regarding the condition of vegetation in the Monument and would provide a mechanism for alteration in management if degradation to vegetation associations was determined to be occurring.

Collection of plants is a vital component of most studies relating to vegetation associations. This type of collection would be allowed by permit as required for the proper documentation of plant specimens and to gain a better understanding of the distribution of plants in the Monument. There is the potential for degradation of vegetation associations by removing plants during surface disturbing research activities, including research relating to other resources. Surface disturbing research projects would be evaluated by the BLM and the GSENM Advisory Committee would be consulted for recommendations on whether research proposals warrant exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. Evaluation of proposed research projects would take into account the short and long-term impacts these collection activities may have on vegetation associations. Increased research in the area may draw attention to vegetation or other resources in the Monument, possibly contributing to impacts discussed previously.

Livestock Grazing

Livestock use has the potential to directly impact vegetation resources by consumption and trampling of vegetation, and indirectly by accelerating erosion leading to further damage of vegetation associations. Additionally, concentrating use around range facilities has the potential to impact plants in close proximity to these facilities. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on Vegetation is a primary measure of range condition. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands. Healthy rangelands also prevent erosion and degradation of soils and water. Monitoring in conjunction with grazing management would provide information on changes in vegetation condition, allowing for changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3).

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) directly impacts vegetation associations by removing plants and biological soil crusts. Indirect impacts to vegetation come from visitor use around sites which results in surface disturbance and erosion of soil. Additionally, visitors are one of the primary vectors for the transport of noxious weed species. Construction of new sites has the potential to introduce weeds into areas where they have not previously been found. Impacts from weeds would be as described below in the *Weed Management* section. Projected increases in use would result in an increase of these impacts.

Recreational Facilities and Use cont.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to direct and indirect impacts, but limited access and use in these zones would not contribute substantially to these impacts. Group size restrictions of 12 and 25 respectively would reduce the potential for these impacts. Pack stock use also has the potential to the introduce weed species, but requirements for weed-free hay on BLM lands would reduce this possibility. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated in these zones for resource protection purposes and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas through the implementation of an allocation system would also help to reduce impacts from this type of use.

There is the potential for the construction of 32 new recreation sites, disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres). Direct and indirect impacts from construction and use of these facilities would be as described above. The small number of new sites and subsequent surface disturbance would not contribute substantially to impacts on vegetation associations. Delineation of these sites and installation of fences and interpretive signs would limit the size of the disturbed area, reducing the direct effects of trampling and indirect effect of erosion. Concentrating use into a smaller area, where use could be accommodated without impacting sensitive resources, reduces impacts to vegetation resources over a larger area of the Monument.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing up to 70 acres. Direct and indirect effects of the surface disturbance and use of these areas would be as described previously for other facilities. As above, the limited number of areas and surface disturbance would not contribute substantially to the impacts on vegetation associations. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to vegetation would be addressed.

Riparian Resources Program

Restoration and maintenance of riparian areas to proper functioning condition would enhance vegetation associated with these systems and contribute to the overall protection of vegetation associations in the Monument. Impacts specific to riparian resources are discussed separately under the **Impacts on Riparian Resources** section of this chapter. Restoration and inventory of all of these areas simultaneously is impossible, but steps are being taken to complete this process through the implementation of the Standards and Guidelines and additional inventory efforts over the next three years. Plants occurring in non-functioning or at risk riparian

BEST COPY AVAILABLE

Riparian Resources Program cont.

areas have the potential to see direct mortality and degradation. Impacts to riparian resources are discussed in detail under a separate heading in this chapter.

Special Status Species Program

Protection of habitat for Federally listed threatened and endangered species (both plants and animals), as described in Chapter 2, **Special Status Plants Species** and **Special Status Animals Species**, would benefit vegetation in the immediate areas of protected habitats. Impacts on special status species are described separately for wildlife and plants in this chapter.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** section of Chapter 2). This would prevent vegetation from the direct effects of being crushed and uprooted and from the indirect effects of these activities, which include removal of vegetation resulting in erosion and degradation of water quality. Additionally, use of vehicles facilitate the transport of noxious weed species, resulting in impacts as described below in the *Weed Management* section. There is the potential for direct and indirect impacts to vegetation resources from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Use of 888 miles of routes designated open may result in people traveling by foot off of these routes directly and indirectly impacting vegetation by trampling, compaction of soil, and surface disturbance causing erosion. It is assumed that this type of impact on vegetation is generally limited to within ¼ mile of routes due to use patterns. Projected increases in use would increase the potential for this type of impact.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This would directly and indirectly impact vegetation by crushing and by causing surface disturbance. Visitors would be encouraged to use areas already disturbed, and new clearing of vegetation would be prohibited. However, some vegetation removal may still occur.

Direct impacts may occur from activities associated with the maintenance of routes, as described for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes (see the **Maintenance** section in Chapter 2). In the limited cases where maintenance activities would occur outside of the existing disturbance, areas would be inventoried to avoid sensitive vegetation, and restoration or revegetation would occur as discussed in that section of Chapter 2. Although there are fewer miles of administrative routes (192 miles), lack of routine maintenance on these routes may increase degradation and erosion. Erosion control structures would be installed when necessary to minimize these impacts.

BEST COPY AVAILABLE

Transportation cont.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some impacts to vegetation associations.

Vegetation Management

Native plants would be used as a priority for all restoration projects in the Monument. This would afford native plant associations protection from displacement and competition from aggressive non-native species.

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. Restoration methods would only be used to restore a natural range of native plant associations in the Monument, directly and indirectly improving the condition of native vegetation throughout the Monument. For example, a seeding which is primarily crested wheatgrass may be burned and seeded to promote the restoration of native plant associations in the area. Again, these treatments would be used to establish a natural range of native plant associations.

Removal of forestry products would only occur on the 23,950 acres currently designated as fuelwood cutting areas, unless more areas are identified as necessary to meet the objective of restoring a natural range of native plant associations. These areas are typically pinyon and juniper woodlands which, as a result of impacts from livestock, wildlife, and fire suppression, have spread and contain little understory and herbaceous growth. Opening of areas through thinning would allow shrub, grass and forb species to increase, improving the condition of these vegetation associations. Trampling of vegetation during collection of forestry products has the potential to occur.

Restoration and revegetation provisions, as discussed in Chapter 2, are required for all surface disturbing activities in the Monument as part of the project planning process. These provisions would provide substantial protection from noxious weed invasion, erosion and further degradation of surrounding vegetation associations.

Water Issues

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when necessary for the protection of Monument resources. The indirect effects of these surface disturbing activities would be the same as for other surface disturbing activities and associated use as described previously. Maintenance of existing water developments has the potential to cause some minor surface disturbance. Project level NEPA analysis would be completed prior to the authorization of any construction activities. These water developments would most often be used to displace use away from sensitive riparian habitat, which is more easily affected by cattle and wildlife. Vegetation in the areas where use is displaced to would see increased use by cattle and wildlife, causing trampling and degradation of these

Water Issues cont.

associations. These impacts would be taken into consideration during the NEPA analysis for future water development projects.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure of plant associations. Noxious weeds can also impact water quality and wildlife species dependent on native vegetation by displacing native species and de-watering of streams. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands and disrupt natural plant and animal associations. Conversion of vegetation structure by noxious weed species can make reestablishment of native plant associations difficult if not impossible. These species are spread by a variety of means, some of which (e.g., vehicles and foot traffic) are directly attributable to human actions and are discussed in those sections.

An active noxious weed control program would focus on the removal of these species in the most sensitive of habitats, such as riparian areas and special status species areas. The use of chemicals in the treatment of weed species, under limited circumstances as described in Chapter 2, has the potential to directly impact some non-target species, but the reestablishment of natural vegetation structure and function would increase the habitat conditions for all species over the long-term. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to non-target species. NEPA analysis would be required prior to project initiation.

Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. Continued degradation of vegetation associations has the potential to occur in areas left untreated.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities on vegetation, as described previously. Research on restoration ecology in conjunction with the adaptive management framework (Appendix 3) would provide mechanisms for restoration of these areas in the future.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. Short-term loss of vegetation would result from fires, but would quickly regrow in areas with diverse vegetation within a growing season. Reseeding with native species would be initiated in areas where species diversity was low prior to burning. Impacts from fire suppression activities can have a profound effect on vegetation, changing the way water moves across the landscape and causing erosion. These effects are difficult to reverse, especially in dry climates such as the Monument's.

Wildfire Management, Management Ignited Fires, and Fire Restoration cont.

Fire would be allowed to play its natural role in the Monument as much as possible, while protecting private land and providing for public safety. Most of the Monument is located in fire management areas which have little suppression activity. This would allow fires to reach a larger size, but would protect vegetation from the surface disturbing effects associated with motorized travel off of designated routes. Areas such as recreation sites and wooden structures would be protected from fire as much as possible and most have access routes to them. Emergency use of equipment, such as chaining, for fire restoration has the potential to impact vegetation associations by clearing vegetation and biological soil crusts which allows for erosion. These methods would not be used for management ignited fires and are only allowed under limited circumstances as described in the **Vegetation Restoration Methods** section of Chapter 2.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to vegetation resources would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, VRM, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON SPECIAL STATUS PLANT SPECIES

Introduction

Various factors have contributed to the overall diversity and unique nature of the Monument's flora. The isolation and presence of hanging gardens and relict plant communities also provide opportunities for rare or unusual plants. Currently, Jones' cycladenia and Ute ladies'-tresses are listed as Federally threatened and Kodachrome bladderpod is listed as Federally endangered. In addition to these three species, there are 14 species listed by the Utah BLM as sensitive species. A list of these species is provided in Appendix 9.

Summary of Effects

Impacts to special status plant populations occur primarily from soil compaction, trampling, and introduction of weed species. Because vehicles are restricted to designated routes, impacts would result primarily from trampling or collection by visitors, or trampling by livestock or wildlife. Restrictions on surface disturbing activities, mechanisms to control visitor use, restoration, and an active weed removal program all contribute to the protection and promote recovery of special status plant species. The BLM concludes that the actions proposed in this Plan are not likely to adversely affect the Kodachrome bladderpod, Jones' cycladenia or sensitive plant populations or habitat in the Monument. Furthermore, the actions described in this Plan would likely be beneficial to the recovery and conservation of these species. Most actions described in this Plan would likely be beneficial to the recovery and conservation of Ute ladies'-tresses populations and habitat. As a result, the BLM concludes that the actions proposed in this Plan may affect, but do not adversely impact, Ute ladies'-tresses populations or habitat. The BLM would continue to work in conjunction with the U.S. Fish and Wildlife Service (USFWS) and adjacent land managers to protect and restore special status species populations and habitat.

Direct and Indirect Effects of Proposed Actions

Collections	The unauthorized collection of objects, including plants and plant parts, is prohibited by the Proclamation and this Plan. Furthermore, the Endangered Species Act prohibits the collection of Federally listed plant species without a permit from the USFWS. The prohibition of these actions would help eliminate the casual collection or taking of protected species in the Monument. Coupled with an education program and increased law enforcement presence in the Monument, there should be little threat from unauthorized collection of listed species in the Monument. Collection of any specimens near known listed species populations for scientific purposes is discussed below in the *Inventory, Monitoring, Research and Adaptive Management* section, and would be closely monitored.
Commercial Filming	Commercial filming in the Monument would be limited to minimum impact standards and would not be permitted in known special status species populations for any reason.
Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way	Communication sites, utility rights-of-way, and road rights-of-way would not be permitted in known special status species populations for any reason. As permits are granted for these activities, surveys would be completed to determine the presence of special status species in the area. If they were found, these activities would be moved to another location. This would protect these resources from the direct and indirect effects of surface disturbance associated with the construction and use of these facilities.
Inventory, Monitoring, Research and Adaptive Management	Non-surface disturbing research activities which focus on increasing the knowledge of special status species in the Monument, or which would help restore and protect these resources, would be encouraged. Surface disturbing research activities would not be allowed in threatened or endangered species habitat. All scientific research projects in close proximity to listed species populations or habitat would be evaluated by Monument biologists, the USFWS, and appropriate experts prior to initiation to determine impacts to these populations or habitat. Any research project which may have an effect on populations of listed species would be coordinated with the USFWS, and appropriate permits and Section 7 consultation would be completed as determined necessary. Projects which provide new information and understanding of listed species, their populations, and/or their habitat, may be allowed after approval by the BLM and the review and issuance of permits by the USFWS. All projects would be evaluated on a case-by-case basis. Increased research in the area may draw attention to these unique associations, possibly contributing to impacts, the introduction of weeds, and degradation of habitat.
Livestock Grazing	Livestock grazing, though allowed in Kodachrome bladderpod and Jones' cycladenia habitat, has little effect on these populations, as stated in the Federal Register listing these species. Furthermore, cattle infrequently use the areas where these plants grow due to the sparse nature of the vegetation, providing little available forage.

Livestock Grazing cont.

Effects of livestock grazing on Ute ladies'-tresses has the potential to be detrimental through trampling, soil compaction, and disturbance of riparian vegetation during certain seasons. Grazing can also be beneficial by keeping the density of the competing vegetation low, allowing the orchid to get enough light to grow. In fact, the Ute ladies'-tresses population is currently healthy, leading to the conclusion that grazing is either benign or beneficial to the population.

Livestock grazing allotments would be evaluated, consistent with the BLM-wide grazing permit review process described in the **Livestock Grazing** section of Chapter 2. Grazing as it relates to all special status plan species would be addressed during this process and would incorporate the latest research and information in the protection of species. Section 7 consultation would be conducted for all allotments that may affect threatened and endangered species during the individual allotment evaluations. This process would provide increased protection for listed and sensitive species. Monitoring in conjunction with grazing management would provide information on impacts on special status animal species, and if impacts were found, changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3) would be taken.

Recreational Facilities and Use

Clearing areas for the construction and placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) would not be permitted in special status plant species populations. Small interpretive signs for resource protection may be placed in close proximity to populations, but would not involve surface disturbance in populations. Since people act as one of the primary vectors for the transport of noxious weed species, an allocation system may be initiated to facilitate the protection of these sensitive resources. Impacts from weeds would be as described below in the *Weed Management* section. Projected increases in use would result in an increase in these impacts.

No recreation facilities (including camping areas and trails) currently occur in Kodachrome bladderpod and Jones' cycladenia populations. New designated primitive camping areas, overnights stays, and pack stock use are also forbidden in these populations, except in existing campgrounds.

There is one trail which occurs within the Ute ladies'-tresses population. Compaction of soil, degradation of vegetation associations, and introduction of weed species all have the potential to impact this population. This trail would be relocated out of the riparian area, wherever possible, and the old trail would be restored with native vegetation. Interpretive signs and barriers could be installed in order to educate the public about the sensitivity of resources in the area. Monitoring of use in these areas would be initiated and implementation of allocations may be initiated if degradation was determined to be occurring.

Ute ladies'-tresses have been documented as growing in Deer Creek Campground. Surveys for this species would be completed and appropriate actions taken to prevent trampling of the plants by visitors in the campground area. These actions may include replanting native vegetation or construction of barriers if these

Recreational Facilities and Use cont.

actions would be appropriate for conservation of this species. Individual sites may be closed if necessary to protect these plants in the campground. Monitoring would continue yearly to assure that these plants are protected. Plans which propose expansion of the campground would be evaluated for the impacts to this species. If expansion results in moving sites out of the immediate riparian zone, and restoring these sites to the natural condition, they would be favored. No expansion which proposes further impact to the riparian area would be considered, as it would increase the potential for impacts to this population.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed, which would include a special status species inventory addressing site specific impacts to special status species.

Riparian Resources Program and Special Status Species Program

Ute ladies'-tresses occur in riparian areas. Restoration and maintenance of riparian areas to proper functioning condition would enhance habitat and potential habitat for this species. Provisions in the Endangered Species Act and BLM policy require the protection of listed species from actions which would lead to further decline or extinction. The BLM would work toward the recovery of species and habitat which are listed as Federally threatened or endangered. The BLM is dedicated to working with the USFWS and adjacent land managers in the recovery and enhancement of listed species populations and habitat.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would afford protection to known special status species populations from the direct effects of being crushed and uprooted, and from the indirect effects of these activities (surface disturbance and removal of vegetation resulting in erosion and degradation of water quality). Additionally, the use of vehicles facilitates the transport of noxious weed species, resulting in impacts as described below in the *Weed Management* section.

Jones' cycladenia grows in areas which have not been used by OHVs or bicycles in the past and no routes occur within 4 miles of recorded plant locations. Unauthorized use in these areas would be unlikely due to a lack of past use, however, monitoring of the areas would continue to ensure damage is not occurring.

The entire population of Ute ladies'-tresses grows in an area which is closed to OHV use due to Outstanding Natural Area designation, and this would continue under this Plan. The Burr Trail crosses the Ute ladies'-tresses population, but impacts would occur primarily from use of facilities (e.g., parking area, campground) rather than the route. The paved nature of the road may bring more people into the areas, increasing the impacts described in the *Recreation Facilities and Use* section above.

Kodachrome bladderpod habitat and population has been threatened in the past from the use of vehicles off of routes, and on existing two-track routes within the population. Monitoring has indicated mortality as a result of

131

Transportation cont.

vehicle use in the area. There is currently one route which would remain open (0.18 miles) through the Kodachrome bladderpod population, but this route has been historically maintained and no plants grow in close proximity to this route. This route would not be open to OHV use. Unauthorized travel off this route has the potential to result in impacts as discussed above. Physical barriers, as well as closed signs, would be placed in strategic locations to prevent access into areas where the Kodachrome bladderpod grows. Restoration of some of the site may be initiated to repair damage from vehicle use. Monitoring would continue in order to determine effects of closures and to measure the resilience of the population. Use of routes and people traveling by foot into these areas may also result in trampling and transport of weed species into the Kodachrome bladderpod population.

The BLM would pursue cooperative agreements with the Sheriff departments in Kane and Garfield Counties to facilitate shared law enforcement and support for enforcing established closures. BLM law enforcement personnel are being hired to help with some of the increased enforcement of proposed closures. The increased field presence of BLM field personnel would help deter non-compliance activities in closed areas.

Vegetation Management

Seeding, vegetation restoration methods, and forestry product collection would not be allowed in special status species populations. Methods for removal of noxious weed species may be initiated if these species are found in these areas, or to restore these areas to natural conditions. Details on impacts from weeds and actions to be taken are described below. Project level NEPA analysis would be completed prior to initiation of these projects.

Water Issues

The information in the **Water** section of Chapter 2 describes a strategy for assuring water availability. Priority would be to maintain natural flows and flood events. The measures described in that section would be initiated to accomplish this goal. In addition, the maintenance of instream flows would provide adequate water for natural structure and function of riparian vegetation. No new water developments would be authorized in special status species populations.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure of plant associations. This can be more pronounced in areas where water is sufficient to facilitate establishment and maintenance of these species, such as in the Ute ladies'-tresses populations. Noxious weeds can also impact water quantity and quality and native vegetation by displacing native species and de-watering these areas. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands and disrupt natural plant associations. Conversion of vegetation structure by noxious weed species can make reestablishment of native plant associations difficult if not impossible. These species are spread by a variety of means, some of which (e.g., foot traffic) are directly attributable to human actions and were discussed previously.

An active noxious weed control program would focus on the removal of these species in the most sensitive of habitats, such as special status species populations. The use of chemicals in the treatment of weed species, *Weed Management cont.*

under limited circumstances as described in Chapter 2, has the potential to directly impact some non-target species, but reestablishment of natural vegetation structure and function would increase the habitat conditions for all species over the long-term. These chemicals would not be used in close proximity to listed species to ensure they are not affected by these actions. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to non-target plant species. NEPA analysis would be required prior to project initiation.

Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. Special status species populations would be targeted as a top priority for removal of weed species. There is the potential for continued degradation of special status species habitat in areas left untreated.

Wild and Scenic Rivers

There are 223 miles of river recommended suitable in this Plan. These segments would be managed for the preservation of identified outstandingly remarkable values. This could prevent damming and diversions upstream (and associated disruption of special status plant habitat such as Ute ladies'-tresses which is along a suitable segment in the Monument), if such activities would harm identified outstandingly remarkable values.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities on Ute ladies'-tresses and Kodachrome bladderpod whose populations partially occur in WSAs.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystem, natural fires do occasionally occur in the area. Due to the sparse nature of vegetation in Kodachrome bladderpod and Jones' cycladenia populations, there is little likelihood that fire was a major component of these systems. Still, natural fires do occur in these areas and these process would not be altered. Reseeding or surface disturbing restoration after fires in these areas would not be allowed. Natural diversity and vegetation structure would provide adequate regeneration of areas. Management ignited fires would also not be allowed in these areas.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to special status plant species would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, VRM, Wildlife Services.*

IMPACTS ON RELICT PLANT COMMUNITIES AND HANGING GARDENS

Introduction

Relict plant communities and hanging gardens contain unique vegetation assemblages as well as associated wildlife species which are not found elsewhere in the Monument. The unique quality of these areas is directly related to their isolation over time and/or from disturbance. This isolation also provides an opportunity to gauge impacts occurring elsewhere in the Monument and on the Colorado Plateau. Although the location of some of these areas are known in the Monument, the potential for additional areas is high.

Summary of Effects

While relict plant communities and hanging gardens can be damaged by surface disturbance and the introduction of weed species, limited access to these areas limits disturbance which would alter their structure and function. Continued protection from surface disturbing activities, uncontrolled visitor use, and weed infestations would substantially protect these associations from degradation. Additionally, inventory and research projects in the Monument would provide information on the location and distribution of these areas, which allows for better protection.

Direct and Indirect Effects of Proposed Actions

Collections

The unauthorized collection of objects, including plants and plant parts, is prohibited by the Proclamation and this Plan. Casual collection (picking flowers, leaves, cones, etc.) in the Monument has not been a problem in the past, and is not anticipated as contributing to the impacts of relict plant communities and hanging gardens in the Monument, due to the inaccessibility of the locations where they occur. Collection for scientific purposes are discussed below in the *Inventory, Monitoring, Research and Adaptive Management* section, and would be closely monitored.

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent damage or destruction in relict plant communities and hanging gardens. These provisions include: no use of heavy equipment and no travel off of designated routes. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting these unique associations could help educate people about the this resource, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in the *Recreational Facilities and Use* section. Mechanisms to control visitor use as described in that section would be initiated to reduce these potential impacts.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Communication sites, utility rights-of-way, and road rights-of-way would not be permitted in relict plant communities or hanging gardens for any reason. This would protect these resources from the direct and indirect effects of surface disturbance associated with the construction and use of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of relict plant communities and hanging gardens in the Monument, or which would help restore and protect these resources, would be encouraged. Inventory projects would be initiated to determine the overall distribution and species composition of relict plant communities and hanging gardens in the Monument. This would provide guidance for increased protection of these resources.

Surface disturbing research activities would not be allowed in relict plant communities and hanging gardens, unless necessary for the restoration of individual sites. Surface disturbing research projects would be evaluated by the BLM, and the GSENM Advisory Committee would be consulted for recommendations on whether research proposals warrant exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. Evaluation of proposed research projects would take into account the short and long-term impacts these collection activities may have on these associations. Increased research in the area may draw attention to these unique associations, possibly contributing to the introduction of weeds and degradation of vegetation and associated species.

Livestock Grazing

The relict plant communities which have been identified in the Monument exist partially due to the fact that little if any livestock use has occurred. For this reason, there is little potential for impacts to occur. Although access to many hanging gardens by livestock is not possible, there are some areas where access has been observed. In these cases, the presence of cattle in these sites has the potential to directly impact vegetation resources by consumption and trampling of vegetation, and indirectly by accelerating erosion, leading to further damage of hanging gardens. Water and increased vegetation associated with hanging gardens attract cattle, increasing the potential for impacts. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands. Inventories would help identify the locations of these resources to facilitate monitoring and protection. Fences, barriers, or other management techniques could be used to prevent cattle from degrading hanging garden associations.

Recreational Facilities and Use

No current recreation facilities occur in relict plant communities and hanging gardens, although trails are in close proximity to some hanging gardens and trails lead to some relict plant areas. Compaction of soil, degradation of vegetation communities and introduction of weed species all have the potential to impact these associations. Monitoring of use in these areas and implementation of allocations may be initiated if degradation is determined to be occurring. Primitive camping, campfires, and pack stock use are also forbidden in relict plant communities. Although these activities are allowed near hanging gardens, they are not allowed directly in them. The prohibition of pack stock use in these areas would eliminate the possibility of weeds transport by

Recreational Facilities and Use cont.

pack stock and the associated feed. This would reduce the possibility of impacts from weeds as described below.

Clearing areas for the construction and placement of new visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) would not be permitted in relict plant communities and hanging gardens. Since people would still be allowed in these areas, and they act as one of the primary vectors for the transport of noxious weed species, limits on the number of people through the implementation of an allocation system may be initiated to facilitate the protection of these sensitive resources. Potential impacts from weeds would be as described below in the *Weed Management* section. Projected increases in use would result in an increase in all of these impacts.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to relict plant communities and hanging gardens would be addressed if applicable.

Riparian Resources Program and Special Status Species Program

Protection of riparian resources would help to protect relict plant communities and hanging gardens associated with them. Restoration and maintenance of riparian areas to proper functioning condition has the potential to enhance sensitive areas associated with these riparian resources. There are currently no known Federally listed species associated with known relict plant communities and hanging gardens. As these sites are inventoried, new species or locations of currently listed species may be found. These species would be protected, and the protection of these species and habitat would contribute to the protection of relict plant communities and hanging gardens.

Transportation

There are no routes in known relict plant communities and hanging gardens. There are 379 acres of relict plant communities within ¼ mile of designated open routes. Increased use on these routes has the potential to impact relict plant communities by visitors introducing weeds or causing surface disturbance. Additionally, there are 25 acres of relict plant communities within ¼ mile of administrative routes, but these would not likely be affected due to the low amount of use and the fact that routes are not directly located in relict plant communities. Motorized and mechanized vehicles have had little effect on relict plant communities and hanging gardens due to inaccessibility and remoteness of these sites. Due to the limitation on vehicles to stay on designated routes, except in limited situations, there is little potential for future damage from vehicle use. The ongoing inventory and adaptive management framework (Appendix 3) would identify new resources or unforseen conflicts between vehicles and these resources.

Vegetation Management

Seeding, vegetation restoration methods, and forestry product collection would not be allowed in relict plant communities and hanging gardens. Methods for removal of noxious weed species may be initiated if these species are found in these areas, or to restore these areas to natural conditions. Project level NEPA analysis would be completed prior to initiation of these projects.

BLANK PAGE

Water Issues

No new water developments would be authorized in relict plant communities or hanging gardens, and maintenance activities that would harm these resources would not be allowed.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure of plant associations. This can be more pronounced in areas where water is sufficient to facilitate establishment and maintenance of these species, such as hanging gardens. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands and disrupt natural plant and animal associations. Relict plant communities are defined as relatively undisturbed native plant associations. Weed species in these associations are a serious concern to the protection of the integrity of these associations. Conversion of vegetation structure by noxious weed species can make reestablishment of native plant associations difficult if not impossible. These species are spread by a variety of means, some of which (e.g., foot traffic) are directly attributable to human actions and were discussed previously.

An active noxious weed control program would focus on the removal of these species in the most sensitive of habitats, such as relict plant communities and hanging gardens. The use of chemicals in the treatment of weed species, under limited circumstances as described in Chapter 2, has the potential to directly impact some non-target species, but the reestablishment of natural vegetation structure and function would increase the habitat conditions for all species over the long-term. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to non-target plant species. NEPA analysis would be required prior to project initiation.

Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. Continued degradation of relict plant communities and hanging gardens has the potential to occur in areas left untreated.

Wilderness Study Area Protection

Until legislation takes affect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities in relict plant communities and hanging gardens, many of which occur in existing WSAs.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. Since relict plant communities and hanging gardens are generally isolated and protected from disturbance, there is little likelihood that fire was a major component of these system. Still, natural fires do occur in areas and these processes would not be altered. The isolation of these areas also contributes to inaccessibility even if fire suppression activities were desired. Short-term loss of vegetation would result from fires, but would quickly regrow in areas with diverse vegetation within a growing season. Reseeding after fires in these areas would not be allowed. Natural diversity and vegetation structure would provide adequate

Wildfire Management, Management Ignited Fires, and Fire Restoration cont.

regeneration of the area. Management ignited fires would also not be allowed in these areas, unless it was determined that fire had been historically and purposefully excluded from an area.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to relict plant communities and hanging gardens would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, VRM, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON RIPARIAN RESOURCES

Introduction

Riparian areas, comprising less than 1 percent of the total lands in the Monument, are some of the most productive, ecologically valuable, and utilized resources in the Monument. Many wildlife species utilize riparian areas for forage, nesting, migration and year around habitat. This species richness is made possible by the plant diversity, availability of water, prey species, and the proximity to upland communities with their floral and faunal diversity. Impacts to riparian resources are similar to impacts on wildlife and vegetation and have been discussed in those sections when applicable. Comprehensive data collection on riparian resources has not been completed at this time, but preliminary inventory information is available and has been used in the analysis when possible.

Summary of Effects

Impacts to riparian resources result directly and indirectly from the removal of vegetation and degradation of water quality from the construction of facilities (e.g., recreation, communication), and from trampling by visitors, livestock, and wildlife. These activities change the composition of vegetative associations by causing weed invasion and surface disturbance, which leads to erosion and habitat degradation. There is a potential for cumulative surface disturbance of approximately 360 acres within the Monument from reasonably foreseeable activities such as recreation facilities, rights-of-way, and water developements over the 15 year planning horizon. However, some of this disturbance (86 acres) can be attributed to new recreation facilities which are prohibited in riparian areas. The remainder of the disturbance estimates would be from activities that would avoid riparian areas whenever possible. In addition, visitor and livestock use have the potential to cause surface disturbance which is difficult to estimate. Vegetation restoration methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations and would occur primarily in areas already disturbed, outside of riparian areas. The following actions all contribute to an increase in protection for riparian resources in the Monument as a result of actions in this Plan: prohibition of facilities in riparian areas; limits and restrictions on all surface disturbing activities; mechanisms to control visitor use; closure of vehicular travel off of designated routes; monitoring of Proper Functioning Condition for riparian areas; monitoring of vegetation condition; restoration and revegetation provisions; and an active noxious weed removal program. Additionally, research and the adaptive

Summary of Effects cont.

management framework (Appendix 3) would facilitate and increase knowledge of these areas in the Monument, and provide mechanisms for changing management to increase protection of these unique and vital resources.

Direct and Indirect Effects of Proposed Actions

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent disturbance or clearing of vegetation and associated soil erosion. These provisions include: no use of heavy equipement, no travel off of designated routes, no work in excess of 10 days, and no degradation of riparian habitat. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting the sensitivity of riparian resources could help educate people about the this resource, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in *Recreational Facilities and Use*. Mechanisms to control visitor use as described in that section would be initiated to reduce these potential impacts.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way has the potential to directly impact riparian resources by physically removing vegetation and biological soil crusts during leveling and other installations activities. Erosion resulting from vegetation loss and soil destabilization during these activities has the potential to further degrade water quality and subsequently riparian resources. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way would be constructed in the Monument over the next 15 years disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites which may be allowed in this areas for safety purposes only and road rights-of-way for private inholdings). Although these sites are allowed on 654,034 acres, the small amount of surface disturbance and low number of potential sites reduce the chance that riparian resources would be affected by these activities. Furthermore, these facilities would avoid riparian areas whenever possible. In all instances, sites would be surveyed prior to construction. In the event that sensitive riparian resources are found, the location of sites or rights-of-way may be moved to avoid these impacts. Project level NEPA analysis would be completed for all projects, taking into account impacts on vegetation and riparian resources. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of riparian resources in the Monument, or which would help restore and protect these resources, would be encouraged. Monitoring initiated as part of the adaptive management framework (Appendix 3) would provide information regarding the condition of riparian resources in the Monument and would provide a mechanism for alteration in management if degradation to riparian resources was determined to be occurring.

Inventory, Monitoring, Research and Adaptive Management cont.

There is the potential for degradation of riparian resources by removing plants during surface disturbing research activities, including research relating to other resources. Surface disturbing research projects would be evaluated by the BLM and the GSENM Advisory Committee would be consulted for recommendations on whether research proposals warrant exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. Increased research in the area may draw attention to riparian areas or other resources in the Monument, possibly contributing to impacts discussed previously.

Livestock Grazing

Livestock use has the potential to impact riparian resources directly by consumption and trampling of vegetation, and indirectly by accelerating erosion leading to further damage of riparian resources. Water and increased vegetation associated with riparian areas attract cattle, increasing the potential for impacts. Additionally, concentrating use around range facilities in riparian areas has the potential to impact plants, animals and soil in close proximity or downstream from these facilities. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on riparian resources is a primary measure of range condition. Assessment of riparian Proper Functioning Condition (PFC) is a standard method of evaluation used to determine condition and impacts to riparian areas (see *Riparian Resources* section below for further discussion). Continued evaluation of these areas is just one aspect of grazing and resource management. Proper grazing, vegetation and riparian management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands. Healthy rangelands also prevent erosion and degradation of soils and water. Monitoring in conjunction with grazing management would provide information on changes in vegetation condition, allowing for changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3).

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) directly impacts riparian resources by removing vegetation and causing ground disturbance leading to erosion and increased sedimentation. Indirect impacts to riparian areas are caused by visitor use around sites, resulting in further surface disturbance and soil erosion. Additionally, people are one of the primary vectors for the transport of noxious weed species. Construction of new sites has the potential of introducing weeds into areas where they have not previously been found. Impacts from weeds would be as described below in the *Weed Management* section. Projected increases in use of all facilities would result in an increase in all of these impacts. Impacts from use in association with recreation sites are generally limited to within ¼ mile of facilities due to ease of access.

New recreation facilities in riparian areas would be limited to small signs for resource protection throughout the Monument. This would afford substantial protection to riparian areas, not only from a lack of surface

Recreational Facilities and Use cont.

disturbance related to construction, but also from the increased use which facilities would bring to these areas. Trails could be delineated in riparian areas, if necessary to prevent widespread impacts from multiple trails. Trails would be delineated outside of riparian areas wherever possible.

Dispersed primitive camping and pack stock use in the Primitive and Outback Zones may lead to direct and indirect impacts. Due to the presence of water and vegetation for shade, these areas are used preferentially over surrounding areas, concentrating use and subsequent impacts. Limited access and group size restrictions of 12 (Primitive) and 25 (Outback) would help reduce the potential for these impacts. Pack stock use also has the potential to contribute to the introduction of weed species, but requirements for weed free hay on BLM lands would reduce this possibility. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated for resource protection purposes in these zones and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas through the implementation of an allocation system could also help to reduce impacts from this type of use.

While new recreation facilities (other than signs and trails) would not be allowed in riparian areas, there is the potential for direct and indirect impacts from the use of facilities in close proximity to (within ¼ mile of) riparian areas. Currently there are 15 recreation sites that are within ¼ mile of riparian habitat, possibly contributing to impacts as described previously. Due to the small number of potential new sites (32 over 15 years, all outside riparian areas), impacts on riparian resources are not expected to be substantial. Some of these facilities would simply better delineate existing parking areas and trailheads to limit and concentrate disturbance in a smaller area. This would protect sensitive resources over a larger area.

Trail use would have similar impacts on riparian areas as other recreation facilities, although the farther away from routes and parking areas, the fewer the number of people, and the less substantial the impacts. There are 120 miles of riparian habitat that occur within ¼ mile of trails in the Monument, possibly contributing to these effects. Of these miles, 95 are in proper functioning condition and the remainder are either non-functioning, functioning at risk, or no data is available. Many of the trails that are in close proximity to riparian areas occur in the Escalante Canyons, where canyons are narrow and placement of trails more than ¼ mile from riparian areas is impossible. In areas where placement of trails out of riparian areas is not possible, trails would be designed to minimize impacts by placing trails away from streams, using soil stabilization structures to prevent erosion, and planting native plants in areas where vegetation has been removed.

It is also anticipated that up to 35 primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in

Recreational Facilities and Use cont.

these two zones (except in existing campgrounds), reducing the potential for more widespread impacts. The delineation of these areas and installation of fences and interpretive signs would limit the size of the disturbed area, reducing the direct effects of trampling and indirect effects of erosion. These areas would be designated where increased use could be accommodated without compromising sensitive resources. Some currently used areas in sensitive riparian habitat may be closed. Any new areas designated for primitive camping would not be located in or in close proximity to sensitive riparian areas.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to riparian resources would be addressed.

Riparian Resources Program

Restoration and maintenance of riparian areas to proper functioning condition would enhance these areas throughout the Monument. There are 439 miles of riparian habitat inventoried in the Monument, representing 80 percent of the total riparian habitat assumed to occur within the Monument boundary. Of these miles, 192 are in proper functioning condition, 120 are non-functioning or functioning at risk, and 122 miles have *no* data available on classification status. Restoration and inventory of all of riparian areas simultaneously is impossible, but steps are being taken to complete this process through the implementation of the Standards and Guidelines and additional inventory efforts over the next three years. Non-functioning and at risk riparian areas have the potential for continued degradation until actions are taken to reverse or stop activities causing these impacts.

Special Status Species Program

Protection of habitat for Federally listed threatened or endangered species (both plants and animals), as described in Chapter 2, would protect riparian areas which occur in conjunction with these species' habitat. Protection of these habitats would reduce or eliminate impacts to riparian areas as well as these listed species. Impacts on special status species are described separately for wildlife and plants in this chapter.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access and Emergency and Management Exceptions** sections of Chapter 2). This would afford protection to riparian areas from vehicles traveling in stream beds and in adjacent riparian vegetation. Keeping vehicles out of these areas would prevent removal of vegetation, accelerated erosion of stream banks, and degradation of water quality. Additionally, use of vehicles off of designated routes facilitates the widespread transport of noxious weed species, resulting in impacts as described below in the *Weed Management* impacts section. There is the potential for direct and indirect impacts to riparian resources from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Direct impacts to riparian resources may occur from activities associated with the maintenance of designated routes, as described for other surface disturbing activities, such as communication sites and recreation sites.

Transportation cont.

Riparian areas are also common stopping places for visitors when traveling along routes, due to shade and proximity to water. This may result in people traveling by foot off of these routes, directly and indirectly impacting riparian areas by trampling vegetation, compacting soil, disturbing wildlife use patterns, and contributing to erosion. There are approximately 27 miles of riparian habitat within ¼ mile of designated open routes. Of these, there are 6.9 miles in proper functioning condition, 3.9 miles non-functioning or functioning at risk, and 16.2 miles where no data is available. These areas would be most susceptible to these impacts. Projected increases in use would increase the potential for this type of impact.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). Travel 50 feet off of designated routes in the Outback Zone does not include travel in riparian areas, and these areas would be signed to reflect this restriction.

Maintenance activities would occur on 888 miles of designated routes in the Monument, although these activities would not be allowed outside the current disturbance on most routes. There are approximately 27 miles of riparian habitat within ¼ mile of these routes as mentioned above. Although some of these routes are not located directly in riparian areas, erosion and increased sedimentation from run-off have the potential to impact riparian resources. In many cases, maintenance activities could help to channel water off routes, reducing erosion and sedimentation.

Although there are fewer miles of administrative routes (192 miles, with approximately 6 miles of riparian habitat within ¼ mile), the lack of maintenance on these routes may increase degradation and erosion. Erosion control structures would be installed when necessary to minimize these impacts to riparian resources.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion. Although restoration would be a priority for the protection of sensitive resources, and non-functioning or functioning-at-risk riparian areas would be a high priority, not all sites can be restored simultaneously, which may result in some impacts to riparian resources.

Vegetation Management

Native plants would be used as a priority for all restoration projects in the Monument. This would afford native plant associations protection from displacement and competition from aggressive non-native species.

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. These methods would only be used to restore a natural range of

Vegetation Management cont.

native plant associations, directly and indirectly improving the condition of native vegetation and riparian areas throughout the Monument.

Forestry product collection would not be permitted in riparian areas, since pinyon and juniper stands are seldom dense enough in these areas to warrant such activities, and soil disturbance may lead to increased sedimentation. Restoration and revegetation provisions, as discussed in Chapter 2, are required for all surface disturbing activities in the Monument as part of the project planning process. These provisions would provide substantial protection from noxious weed invasion, erosion and further degradation of surrounding riparian resources.

Water Issues

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when necessary for the protection of Monument resources. The effects of this surface disturbing activity would be the same as for other surface disturbing activities and associated use as described previously. These water developments would most often be used to displace use away from sensitive riparian habitat, which is more easily affected by livestock and wildlife use. Maintenance of existing water developments has the potential to cause some minor surface disturbance, but most maintenance activities would be to fix facilities and prevent further degradation of the surrounding area. Project level NEPA analysis would be completed prior to the authorization of any construction activities. Impacts to riparian resources would be taken into consideration during NEPA analysis for future water development projects.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure of plant associations, especially in riparian areas where water is sufficient to facilitate establishment and maintenance of these species. Noxious weeds can also impact water quality and wildlife species dependent on native vegetation by displacing native species and de-watering streams. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands and disrupt natural plant and animal associations. Conversion of vegetation structure by noxious weed species can make reestablishment of native plant associations difficult if not impossible. These species are spread by a variety of means, some of which (e.g., vehicles and foot traffic) are directly attributable to human actions and are discussed in those sections.

An active noxious weed control program would focus on the removal of these species in the most sensitive of habitats, such as riparian areas. The use of chemicals in the treatment of weed species has the potential to directly impact some non-target species, but reestablishment of natural vegetation structure and function would increase the habitat conditions for all species over the long-term. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to non-target species. NEPA analysis would be required prior to project initiation.

Weed Management cont.

Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. There is the potential for continued degradation of riparian resources in areas left untreated.

Wild and Scenic Rivers

There are 223 miles of river recommended suitable in this Plan. These segments would be managed for the preservation of identified outstandingly remarkable values. This could prevent damming and diversions on upstream segments (and associated disruption of riparian resources on the Monument) if such activities would harm identified outstandingly remarkable values.

Wilderness Study Area Protection

Until legislation takes affect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities in riparian areas, where they occur in WSAs. Vegetation restoration methods in these areas would only done where compatible with the BLM's IMP. Research on restoration ecology in conjunction with the adaptive management framework (Appendix 3) would provide mechanisms for restoration of these areas in the future.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. Riparian areas are even less likely to have fires, and are consequently less adapted to the effects of fire. Short-term loss of vegetation would result from fires, but would quickly regrow in areas with diverse vegetation within a growing season. Due to the fact that many riparian areas have evolved without the influence of fire, some species may not recover to pre-burned condition. Emergency seeding measures may be initiated if accelerated erosion is anticipated in large riparian systems. These practices would be in accordance with recommendations from the Burned Area Emergency Rehabilitation (BAER) Team report. Reseeding with native species would be a priority and would be initiated in areas of where species diversity was low prior to burning.

Impacts from fire suppression activities can have a profound effect on vegetation, including riparian areas, changing the way water moves across the landscape and causing erosion. These effects are difficult to reverse, especially in dry climates such as the Monument. Fire would be allowed to play its natural role in the Monument as much as possible, while protecting private land and providing for public safety. Little chance exists for fires to occur in riparian areas due the prohibition of campfires in the Escalante Canyons and Paria Hackberry areas, and the small amount of natural fires which have historically occurred in riparian areas. Most of these canyons are inaccessible, making suppression difficult if not impossible. This protects these areas from the impacts of suppression activities.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to riparian resources would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Collection, VRM, Wildlife Services.*

IMPACTS ON WILDLIFE

Introduction

The Proclamation establishing the Monument states: "Nothing in this proclamation shall be deemed to diminish the responsibility and authority of the State of Utah for management of fish and wildlife, including regulation of hunting and fishing, on Federal lands within the Monument." At the same time, the proclamation refers to the "outstanding biological resources" and " important ecological values" in the Monument. These resources, which encompass entire natural systems, including fish and wildlife habitat, are among those the BLM has been given responsibility to manage and protect. Monument wildlife includes all vertebrate and invertebrate animal species (aquatic and terrestrial), including insects, reptiles and amphibians, fish, birds, and mammals. Threatened and endangered wildlife species are discussed separately. Wildlife species are interrelated and interdependent; impacts to any one are likely to impact others. Data on the presence and distribution of wildlife in the Monument area is scarce. Collaborative inventory and monitoring projects would help improve current baseline data, including spatial information, which improves future habitat and species management.

Summary of Effects

Impacts to wildlife species populations and habitat occur primarily from the alteration of foraging habitat through surface disturbing activities and from use of facilities such as recreation sites and routes. Increased erosion, degradation of riparian habitat, disruption of nesting activities, and introduction of weed species are a direct result of these activities. There is a potential for cumulative surface disturbance of approximately 360 acres from reasonably foreseeable activities such as recreation facilities, rights-of-way, and water developments over the 15 year planning horizon. Much of the surface disturbance associated with recreational facilities would occur in areas already disturbed by existing camping or other uses. Subsequently, acres of disturbance from these activities would likely be less than are reported here. In addition, visitor and livestock use have the potential to cause surface disturbance, which is difficult to estimate. Vegetation restoration methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations in areas already disturbed, which would improve habitat for native wildlife species. Restrictions on surface disturbing activities, mechanisms to control visitor use (e.g., allocations, groups size restrictions, designated camping areas), closure to vehicular travel off of designated routes, restoration, avoidance, and an active weed removal program all contribute to the protection of all wildlife species.

Direct and Indirect Effects of Proposed Actions

Collections

The collection of objects, including wildlife, is prohibited by the Proclamation and this Plan, with the exception of wildlife controlled by the State of Utah, Division of Wildlife Resources. Collection of wildlife or wildlife parts is controlled by regulations set forth by the Utah Wildlife Board. This includes the collection of antlers and horns, and the collection of wildlife for scientific research. Unauthorized collection of wildlife in the

Collections cont.

Monument has not been a problem in the past, and is not anticipated to contribute to the impacts of wildlife populations in the Monument.

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions that would prevent disturbance of wildlife habitat. These provisions include: no use of heavy equipment, no travel off of designated routes, no work in excess of 10 days, and no degradation of riparian habitat. A full list of these restrictions is found in Chapter 2, **Commercial Filming**. Films documenting wildlife in the Monument could help educate people about the habitat needs and wildlife sensitivity, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in *Recreational Facilities and Use*. Mechanisms to control visitor use as described in that section would be initiated in order to reduce these potential impacts.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way has the potential to impact wildlife species by destroying or degrading habitat and causing erosion. The construction of powerlines has the potential to impact raptor species. Raptor provision for powerlines, which are a standard procedure discussed in the **Rights-of-Way** section of Chapter 2, would reduce or eliminate this type of impact. It is assumed that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed in the Monument over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). Although these sites are allowed on 654,034 acres, the small amount of surface disturbance and low number of potential sites reduce the chance that wildlife habitat, use patterns, or other activities would be disrupted by these facilities. In all instances, sites would be surveyed prior to construction. In the event sensitive wildlife species or habitat are found in these areas, the location of sites or rights-of-way may be moved to avoid these impacts. Project level NEPA analysis would be completed for all projects, taking into account wildlife impacts. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of the distribution and presence of wildlife species in the Monument, or which would help restore and protect wildlife habitat, would be encouraged. Monitoring initiated as part of the adaptive management framework (Appendix 3) would provide information regarding the condition of wildlife species in the Monument and would provide a mechanism for alteration in management if impacts on wildlife species or habitat were determined to be occurring.

There is the potential for the degradation of wildlife habitat, as described previously, from surface disturbing research activities, including research relating to other resources. Surface disturbing research projects would be

Inventory, Monitoring, Research and Adaptive Management cont.

evaluated by the BLM and the GSENM Advisory Committee would be consulted for recommendations on whether research proposals warrant exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives. Taking of animals is often a component of wildlife studies, though becoming less common. Wildlife taken in conjunction with scientific research requires a Certificate of Registrations from the Utah Division of Wildlife Resources. Evaluation of proposed research projects would take into account the short and long-term impacts these collection activities may have on wildlife populations. Increased research in the area may draw attention to the wildlife or other resources in the Monument, possibly contributing to impacts discussed previously.

Livestock Grazing

Livestock grazing has the potential to directly impact wildlife by competing for habitat, especially in riparian areas. Livestock grazing also has the potential to indirectly impact wildlife by changing vegetation composition, structure, and function. Aquatic wildlife has the potential to be affected by water quality degradation resulting from a reduction of vegetative cover and erosion in and near streams and water sources. A discussion of impacts to wildlife in relation to water developments is included in the *Water Issues* section below. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. The effects of livestock grazing on wildlife species would be assessed in the evaluation of allotments as part of the Standards and Guidelines implementation. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands, with ample forage for both wildlife and livestock. Healthy rangelands also prevent erosion and degradation of water quality, protecting aquatic habitat and species from mortality and habitat loss. Monitoring in conjunction with grazing management would provide information on changes in vegetation condition, allowing for changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3).

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) indirectly impacts wildlife species by clearing vegetation and biological soil crusts, and from increased visitor use around sites, allowing for erosion of soil and degradation of vegetation associations. Use of recreation sites close to waterways and riparian areas may lead to increased erosion and sedimentation, affecting water quality and aquatic habitats. Direct impacts result from disruption during construction activities and subsequent use of sites, possibly disrupting travel patterns, nesting activities, roosting, foraging, and migration. Projected increases in use would result in an increase of these impacts.

Currently there are 15 recreation sites within ¼ mile of riparian areas, possibly affecting aquatic wildlife habitat and riparian habitat for species associated with these areas. These sites would be evaluated for impacts and appropriate actions taken if degradation of habitat or species population decline was identified as a result of

Recreational Facilities and Use cont.

increased use at recreation sites. Actions may include: site stabilization, implementation of allocations, establishment of monitoring plots, construction of barriers, temporary closures, and interpretive information provided for education about the sensitivity of affected wildlife species. Additional surveys and research projects would contribute to the knowledge of species distribution, providing for increased protection of these species. Due to the large size of the Monument, inventory and distribution information for all species is unlikely, resulting in possible mortality and/or habitat destruction. If mortality or habitat destruction for wildlife species were found from visitor use, actions would be taken as described previously to reduce these impacts.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to indirect impacts, but due to limited access and use in these zones these uses would not contribute substantially to these impacts. Group size restrictions of 12 and 25 respectively, would help reduce the potential for these impacts. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated in these zones for resource protection purposes and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas through the implementation of an allocation system could also help to reduce impacts from this type of use.

There is the potential for 32 new recreation sites, disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres). Direct and indirect impacts from construction and use of these facilities would be as mentioned previously. The small number of new sites and subsequent surface disturbance would not contribute substantially to impacts on wildlife species. For all proposed sites, surveys would be completed prior to construction and impacts on wildlife species considered in facility placement. Delineation of these sites and installation of fences and interpretive signs would limit the size of the disturbed area. Concentrating use into a smaller area, where use could be accommodated without impacting sensitive resources, reduces impacts to wildlife habitat over a larger area of the Monument.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing up to 70 acres. Direct and indirect effects of the surface disturbance and use of these areas would be as described previously for other facilities. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts to wildlife habitat. As above, the limited number of areas and surface disturbance would not contribute substantially to the impacts on wildlife species and habitat.

155

Recreational Facilities and Use cont.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to wildlife species and habitat would be addressed.

Riparian Resources Program

Restoration and maintenance of riparian areas to proper functioning condition would enhance wildlife habitat and contribute to the overall protection of these species. Impacts specific to riparian resources are discussed separately under the **Impacts on Riparian Resources** section of this chapter. Restoration and inventory of all of these areas simultaneously is impossible, but steps are being taken to complete this process, through the implementation of the Standards and Guidelines and additional inventory efforts over the next three years. Wildlife species, especially aquatic wildlife, occurring in non-functioning or at risk riparian areas have the potential to see a population decline from habitat degradation.

Special Status Species Program

Protection of habitat for Federally listed threatened and endangered species and state listed species (both plants and animals), as described in Chapter 2, would additionally protect other wildlife species habitat. Impacts on special status species are described separately for wildlife and plants in this chapter.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** [illegible] **Emergency and Management Exceptions** sections of Chapter 2). This would afford protection to wildlife species from the direct effects of vehicle use off of designated routes, including noise and the presence of people and vehicles in the area, possibly disrupting travel patterns, nesting activities, roosting, foraging, and migration. Protection from indirect effects, including removal and damage of vegetation and habitat, erosion from surface disturbance causing loss of habitat, and degradation of water quality, would also occur as a result of these restrictions. There is the potential for direct and indirect impacts to wildlife from unauthorized vehicle travel off of designated routes in the Monument. Efforts for enforcement, as described in the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Use of 888 miles of designated open routes may result in indirect impacts to wildlife species, loss of habitat from people travelling off routes on foot, and erosion from surface disturbance causing loss of habitat and degradation of water quality. It is assumed that this type of impact on wildlife species is generally limited to within ¼ mile of routes. Projected increases in use would increase the potential for this type of impact.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). Visitors would be encouraged to use areas already disturbed, and new clearing would be prohibited. However, some vegetation removal may still occur. This is expected to have little direct and indirect impact on wildlife species and habitat.

Transportation cont.

In addition to the number of miles open to vehicle travel, the orientation of these designated routes in relation to wildlife migration routes also affects these species. Often it is difficult to determine impacts from these types of activities since wildlife species may adapt to regular use in an area, changing use and timing of use in areas in response to disturbance. There are approximately 588 miles of designated open routes and 109 miles of administrative routes within mule deer habitat, 52 miles of designated open routes and 2 miles of administrative routes in elk habitat, 45 miles of designated open routes and 1 mile of administrative routes in black bear habitat, 45 miles of designated open routes and 13 miles of administrative routes in bighorn sheep habitat, and 64 miles of designated open routes and 5 miles of administrative routes in upland bird habitat. The closure of 1,087 miles of routes in the Monument, could reduce wildlife disturbance and vehicle strikes. The resulting increased traffic on the remaining routes has the potential to increase mortality of wildlife, especially deer, where routes cross migration paths.

Temporary, short-term direct impacts may occur from activities associated with the maintenance of designated routes, as described for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of designated routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes (see the **Maintenance** section in Chapter 2). Maintenance activities would not occur with enough regularity to have a substantial impact on wildlife species. However, in the limited cases where maintenance activities would occur outside of the existing disturbance, areas would be inventoried to minimize impacts to sensitive wildlife habitat.

Administrative routes (192 miles) throughout the Monument could indirectly impact wildlife species by causing erosion. Erosion control structures would be installed when necessary to minimize these impacts. Limited use on these routes would minimize the disruption to wildlife.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some impacts to wildlife habitat.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. In accordance with the vegetation management objectives, these treatments would only be used to restore a natural range of plant associations. For example, a seeding which is primarily crested wheatgrass may be burned and seeded to promote the restoration of native plant associations in the area. Restoration of native plant associations would provide forage and habitat for native wildlife species with which they evolved.

Vegetation Management cont.

Removal of forestry products in the Monument would only occur on 23,950 acres in the Monument unless more areas are identified as necessary to meet the objective of having a natural range of native plant associations. Opening of areas through thinning would benefit species dependent on grassland and small shrub browse species, but has the potential of impacting species dependent on pinyon and juniper communities. The small amount of area where these activities would be allowed would not contribute substantially to impacts on wildlife species.

Water Issues

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when deemed beneficial overall for Monument resources. The indirect effects of surface disturbing activities would be the same as for other surface disturbing activities and associated use as described previously. All new water developments would have provisions for wildlife use, benefitting certain wildlife species. Maintenance of existing water developments has the potential to cause some minor surface disturbance, some of which would be associated with measures to adapt developments so they are compatible for wildlife use. Project level NEPA analysis would be completed prior to the authorization of any construction activities. These water developments would most often be used to displace use away from sensitive riparian habitat, crucial for many wildlife species in the Monument. This would facilitate the protection and enhancement of water quality in the Monument and subsequently reduce population pressures on aquatic wildlife species and their habitat.

Weed Management

Noxious weeds can impact wildlife indirectly by replacing native species and de-watering critical riparian habitat. Removal of these species, though temporarily removing cover, would facilitate the return of native species in the long-term. The recovery of native vegetation structure and function would improve habitat and populations of wildlife species, since these species evolved together. The use of chemicals in the treatment of weed species under limited circumstances as described in Chapter 2, has the potential to directly impact some species of wildlife in the short-term. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to wildlife species. NEPA analysis would be completed prior to project initiation. Although removal of noxious weed species is a priority, all areas can not be targeted for removal efforts at once. There is the potential for continued degradation of wildlife habitat in areas left untreated.

Wild and Scenic Rivers

There are 223 miles of river recommended suitable in this Plan. These segments would be managed for the preservation of identified outstandingly remarkable values. This could prevent damming and diversions on upstream segments (and associated disruption of riparian wildlife habitat in the Monument) if such activities would harm identified outstandingly remarkable values.

Wilderness Study Area Protection	Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities on wildlife habitat in WSAs. Vegetation restoration methods in these areas would only be allowed where consistent with the Interim Management Policy. Research on restoration ecology in conjunction with the adaptive management framework would provide mechanisms for restoration of these areas in the future.
Wildfire Management, Management Ignited Fires, and Fire Restoration	Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. A short-term loss of habitat would result to species dependent on these plants. Forage and habitat would quickly return to these areas, providing ample forage within a growing season. There is the potential for impacts to result from an immediate reduction in prey species. Again, these would be short-term impacts, as population numbers would rebound for prey species as forage increased. Most of the Monument is located in fire management areas which have little suppression activity. This would allow fire to reach a larger size, but would protect wildlife species from the surface disturbing effects associated with motorized cross-country travel and access. Emergency use of equipment, such as chaining, for fire restoration has the potential to impact wildlife habitat by clearing vegetation and biological soil crusts which allows for erosion. These methods would not be used for management ignited fires and are only allowed under limited circumstances as described in the **Vegetation Restoration Methods** section of Chapter 2. Effects of such activities on sensitive wildlife species would be assessed prior to their use.
Wildlife Services(Animal Damage Control)	Animal damage control activities would directly impact targeted wildlife species by removing individual animals from the population. Use of poisons or other pre-control methods, or methods which target entire populations, would not be allowed as described in the **Wildlife Services** section of Chapter 2. Restrictions on Wildlife Services methods in the Monument would prevent inadvertent mortality of non-predator species.
Proposed Actions with no Reasonably Foreseeable Effects	No reasonably foreseeable effects to wildlife species or habitat would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, VRM.*

IMPACTS ON SPECIAL STATUS ANIMAL SPECIES

Introduction

There are two Federally listed threatened species and six Federally listed endangered species known to occur within the Monument. The threatened species are the bald eagle and the Mexican spotted owl. The endangered species are: the California condor (an experimental, non-essential population), the Colorado pikeminnow, the American peregrine falcon, the razorback sucker, the Kanab ambersnail, and the southwestern willow flycatcher. There are no known candidate species within the boundaries of the Monument. The Mexican spotted owl and American peregrine falcon are the only listed bird species known to nest in the Monument, and additional information on nesting locations needs to be collected. In addition to these listed species, there are also sensitive species which are included in the special status animal species discussed here and described in the **Special Status Animal Species** section of Chapter 2. Surveys to gather additional information on the distribution and population of special status animal species in the Monument are discussed below.

Summary of Effects

Impacts to special status animal populations and habitat occur primarily from the alteration of foraging habitat through surface disturbing activities and from use of facilities such as recreation sites and routes. Increased erosion, degradation of riparian habitat, disruption of nesting activities, and introduction of weed species are all direct results of these activities. Because vehicles are restricted to designated routes, impacts would result primarily from trampling or collection by visitors. Restrictions on surface disturbing activities, mechanisms to control use (allocations, groups size restrictions, designated camping areas), restoration, and an active weed removal program all contribute to the protection and recovery of these listed species. The BLM concludes that the actions proposed in this Plan are not likely to adversely affect bald eagle, American peregrine falcon, Mexican spotted owl, southwestern willow flycatcher, California condor, Kanab ambersnail, Colorado pikeminnow, razorback sucker or sensitive wildlife species populations or habitats in the Monument. Furthermore, the actions described in this Plan would likely be beneficial to the recovery and conservation of these species. The BLM would work in conjunction with the USFWS and adjacent land managers to protect and restore special status animal species populations and habitat.

Direct and Indirect Effects of Proposed Actions

Collections

The collection of objects, including special status animal species, is prohibited by the Proclamation and this Plan. Furthermore, the Endangered Species Act prohibits the collection of Federally listed animal species without a permit from the USFWS. The prohibition of these actions would help eliminate the casual collection or taking of protected species in the Monument. Coupled with an education program and increased law enforcement presence in the Monument, there should be little threat from unauthorized collection of listed species in the Monument. Collection of listed species for scientific purposes is discussed below in the *Inventory, Monitoring, Research and Adaptive Management* section, and would be closely monitored.

BEST COPY AVAILABLE

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards and is restricted by many provisions as described in the **Commercial Filming** section of Chapter 2. Commercial filming in the Monument would not be permitted in known special status species nesting areas. Films documenting special status animal species in the Monument could help educate people about the habitat needs and wildlife sensitivity, but filming relating to any aspect of the Monument may bring more people to the area, possibly causing increased use and damage as described below in *Recreational Facilities and Use*. Mechanisms to control visitor use as described in that section would be initiated to reduce these potential impacts

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Communication sites, utility rights-of-way, and road rights-of-way would not be permitted in known special status species nesting areas. Prior to the initiation of these activities, surveys for special status animal species would be completed. Projects determined to affect special status animal species would be moved to avoid impacts. Although the construction of powerlines (where they are allowed) has the potential to impact raptor species, raptor protection guidelines, as discussed in the **Rights-of-Way** section of Chapter 2, would reduce or eliminate this type of impact. Project level NEPA analysis would be completed for all projects, taking into account impacts on special status animal species.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of the distribution and presence of special status animal species in the Monument, or which would help restore and protect special status animal species habitat would be encouraged. Surface disturbing research activities would not be allowed in known nesting areas for threatened or endangered species. All scientific research projects in close proximity to listed species populations or habitat would be evaluated by Monument biologists, the USFWS, and appropriate experts prior to initiation to determine impacts to these populations or habitats. Any research project which may have an effect on populations of listed species would be coordinated with the USFWS, and appropriate permits and Section 7 consultation would be completed as determined necessary. Projects which provide new information and understanding of listed species, their populations, and/or their habitat may be allowed after approval by the BLM and the review and issuance of permits by the USFWS. All projects would be evaluated on a case-by-case basis.

A comprehensive inventory for Mexican spotted owls in the Monument began in 1999. This project will look at occurrence of owls, current habitat, and potential habitat if modifications are made. After the surveys in 1999, the BLM would designate protected activity centers in accordance with the recovery plan. These protected activity centers would place limitations on activities as described below in the *Recreation Facilities and Use* section. Limitations would be based on the identification of activities which may be affecting this species.

A comprehensive inventory for southwestern willow flycatcher populations in the Monument began in 1999. This study will look at occurrence of southwestern willow flycatchers, current habitat, and potential habitat if modifications are made (e.g., removal of tamarisk). This inventory would help to identify some of the impacts

Inventory, Monitoring, Research and Adaptive Management cont.

which may be occurring in the area, which would help the BLM determine when and where limits on activities (such as recreational use) need to be implemented to protect the southwestern willow flycatcher.

Although the primary habitat for the Kanab ambersnail is along Kanab Creek (a drainage not connected to the Monument), there is a potential for this species to occur within the Monument. Surveys for this species have begun in the 1999 field season. Surveys will be conducted in potential habitat, moist seeps and along water courses in the Grand Staircase portion of the Monument. Results of this survey would be used to determine the potential for further surveys. If this species is discovered in the Monument, actions would be taken to improve habitat as consistent with the recovery plan objectives. Actions may include assuring flows in appropriate streams and seeps by removing non-native plants affecting the water table, and reducing impacts from visitors and/or livestock. Surveys would also identify current habitat and potential habitat if modifications are made (e.g., removal of tamarisk).

Increased research in the area may draw attention to the special status animal species or other resources in the Monument, possibly contributing to impacts discussed previously. Monitoring initiated as part of the adaptive management framework (Appendix 3) would provide information regarding the condition of special status animal species in the Monument and would provide a mechanism for alteration in management if degradation to special status animal species was determined to be occurring.

Livestock Grazing

Livestock grazing has the potential to directly impact special status animal species by competing for habitat, especially in riparian areas. Livestock grazing has the potential to indirectly impact special status animal species by changing vegetation composition, structure, and function. Aquatic special status animal species have the potential to be affected by water quality degradation resulting from erosion in and near streams and water sources. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on special status animal species would be assessed. Section 7 consultation would be conducted for all allotments that may affect Federally listed species. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands, with ample foraging habitat for both wildlife and cattle. Healthy rangelands also prevent erosion and degradation of water quality, protecting aquatic habitat and species from mortality and habitat loss. Monitoring in conjunction with grazing management would provide information on impacts on special status animal species, and if impacts were found, changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3) would be taken.

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails and toilets) indirectly impacts special status animal species by clearing vegetation and biological soil crusts allowing for erosion of soil and degradation of vegetation associations and habitat. Use of recreation sites close to waterways and riparian areas may lead to increased erosion and sedimentation, impacting water quality and aquatic based habitats. These impacts are discussed in the **Impacts on Riparian Resources** section in this chapter. Direct impacts result from disruption during construction activities and subsequent use of sites, possibly disrupting travel patterns, nesting activities, roosting, foraging, and migration. This type of impact would have the most effect on nesting activities of spotted owls and peregrine falcons. It is assumed that this type of impact would be limited to ½ mile for spotted owls and 1 mile for peregrine falcons. Projected increases in use would result in an increase of these impacts.

Currently there is 1 recreation site and 34.2 miles of trails within the above distances of nesting sites, possibly affecting these species. These sites would be evaluated for impacts and appropriate actions taken if degradation of habitat or species population decline was identified as a result of increased use at recreation sites. Actions related to spotted owls would be in conjunction with future identification of protected activity centers, as outlined in the Mexican Spotted Owl Recovery Plan. Actions may include: site stabilization, implementation of allocations, establishment of monitoring plots, construction of barriers, temporary closures for restoration, and interpretive information provided for education about the sensitivity of affected special status animal species.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to indirect impacts, but due to limited access and use in these zones these activities would not contribute substantially to these impacts. Group size restrictions of 12 and 25 respectively, would help reduce the potential for these impacts. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be designated in these zones for resource protection purposes and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas through the implementation of an allocation system would also help to reduce impacts from this type of use.

There is the potential for construction of 32 new recreation sites disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres). Direct and indirect impacts from construction and use of these facilities would be as described previously. The small number of new sites and subsequent surface disturbance would not contribute substantially to direct impacts on special status animal species, but indirect use may affect these species. For all proposed sites, surveys would be completed prior to construction and special status animal species and habitats would be considered in facility placement. Sites would not be constructed within ½ mile of

Recreation Facilities and Use cont.

spotted owl nesting areas or 1 mile of peregrine falcon nesting areas without concurrence of the USFWS. NEPA analysis would be completed on all new recreation facilities, including consultation with USFWS for those projects that may affect special status animal species. Delineation of these sites and installation of fences and interpretive signs would limit the size of the disturbed area, reducing water quality degradation caused by erosion.

It is reasonably foreseeable that 35 new primitive camping areas would be designated, disturbing 70 acres. Most of these areas would be located in areas where primitive camping is already occurring. Direct and indirect effects of the surface disturbance and use of these areas would be as described previously for other facilities. Again, these areas would not be located within ½ mile of spotted owl nesting areas or 1 mile of peregrine falcon nesting areas without the concurrence of the USFWS. The delineation and use of areas would affect special status animal species as described previously for recreation sites.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed, consultation with the USFWS would occur where listed species may be affected, and site specific impacts to special status animal species would be addressed.

Although there is currently not extensive use of the Monument for rock climbing, criteria for designation of climbing areas would be established for the Monument. Climbing is currently not permitted on arches, natural bridges, in archaeological sites or in known special status animal species nest sites. If nest sites are identified in areas designated for climbing, seasonal or permanent closures would be established in those areas to assure disturbance of nesting activities does not occur.

Riparian Resources Program

Restoration and maintenance of riparian areas to proper functioning condition would enhance habitat for spotted owls, peregrine falcons, southwestern willow flycatchers, and bald eagles, and would contribute to the overall protection of these special status animal species dependent on these areas for food and shelter. Impacts to riparian areas are discussed in the **Impacts on Riparian Resources** section of this chapter.

Special Status Species Program

BLM policy and provisions in the Endangered Species Act require the protection of listed species from actions which would lead to further decline or extinction. The BLM would work toward the recovery of species which are listed as Federally threatened and endangered. The BLM is dedicated to working with the USFWS and adjacent land managers in the recovery and enhancement of listed species populations and habitat.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would afford protection to special status animal species from the direct effects of vehicle use off of designated routes, which include: noise and the presence of people and vehicles in the area, possibly disrupting

Transportation cont.

travel patterns, nesting activities, roosting, foraging, and migration. Protection from the indirect effects, which include removal and damage to vegetation for forage and habitat, erosion from surface disturbance causing loss of habitat and degradation of water quality, would also occur as a result of these restrictions. There is the potential for unauthorized vehicle travel off of designated routes, resulting in the impacts discussed above. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Use of 888 miles of designated routes may result in indirect impacts to special status animal species due to loss of habitat from people traveling off of designated routes on foot. This use has the potential to lead to erosion and surface disturbance causing loss of habitat and degradation of water quality. Additionally, direct physical disturbance of nesting species (spotted owls, peregrines) may occur as a result of this use. It is assumed that this type of impact on special status animal species is generally limited to within ½ mile of routes for spotted owls and 1 mile for peregrine falcons. Projected increases in use would increase the potential for this type of impact.

Currently there are 9 recorded nest sites within the above distances of designated open routes. Monitoring in these areas would determine if impacts to these populations were occurring from activities associated with these routes. Additionally, 70 sightings of bald eagle, southwestern willow flycatcher, and other State sensitive species have been documented within ¼ mile of these routes. Restrictions on foot traffic in these areas would be implemented if impacts were determined to be occurring to special status animal species.

Temporary, short-term direct impacts may occur from activities associated with the maintenance of designated routes, as described for other surface disturbing activities such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of designated routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes. Maintenance activities would not occur with enough regularity to have a substantial impact on special status animal species. Nonetheless, potential impacts to special status animal species would be evaluated, and steps taken to minimize impacts, prior to any maintenance activities.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). It is expected that this would have little direct or indirect impacts on special status animal species because habitat requirements and known sites are generally not adjacent to routes. If nest sites were identified within 50 feet of these routes, the area would be signed to close the area to pulling off routes.

There are 192 miles of administrative routes throughout the Monument which have the potential to indirectly impact special status animal species by causing erosion. There are 9 recorded nest sites within the above

165

Transportation cont.

distances of administrative routes. There have also been 4 sightings of bald eagle, southwestern willow flycatcher, and other State sensitive species which have been documented within ¼ mile of these routes. Due to the limited amount of use of the routes it is unlikely that impacts would result from use of the routes. Erosion control structures would be installed when necessary to minimize these impacts.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some impacts to special status animal species habitat.

Vegetation Management

Vegetation manipulation would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. These areas would not be located in areas where special status animal species roost or nest. Restoration of native plant associations would provide foraging areas and habitat for special status animal species with which they evolved.

Removal of forestry products in the Monument would only occur on 23,950 acres in the Monument, unless more areas are identified as necessary to meet the objective of having a natural range of native plant associations. No known nesting or roosting sites for special status animal species would be included in these areas. Opening of areas through thinning would benefit species dependent on open areas for foraging such as spotted owls. The small amount of area where these activities would be allowed would not contribute substantially to impacts on special status animal species.

Water Issues

The information in the Water section of Chapter 2 describes a strategy for assuring water availability. Priority would be to maintain natural flows and flood events. The measures described in that section would be initiated to accomplish this goal. In addition, the maintenance of instream flows would provide adequate water for natural structure and function of riparian vegetation, on which many of these species depend.

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when deemed to benefit overall protection of Monument resources. The indirect effects of surface disturbing activities would be the same as for other surface disturbing activities and associated uses as described previously. All new water developments would have provisions for special status animal species use. Maintenance of existing water developments has the potential to cause some minor surface disturbance, but would also be necessary to adapt current developments to be compatible with special status animal species use. Project level NEPA analysis and inventories for these resources could be required prior to the authorization of

Water Issues cont.

maintenance activities. These water developments would most often be used to displace use away from sensitive riparian habitat, crucial for many wildlife species, including special status species.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure of plant associations. This can be more pronounced in areas where water is sufficient to facilitate establishment and maintenance of these species. Noxious weeds can also impact water quantity and quality and native vegetation by displacing native species and de-watering these areas. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands and disrupt natural plant associations. Conversion of vegetation structure by noxious weed species can make reestablishment of native plant associations difficult if not impossible. These species are spread by a variety of means, some of which (e.g., foot traffic) are directly attributable to human actions and were discussed previously.

An active noxious weed control program would focus on the removal of these species in the most sensitive of habitats, such as special status species populations and riparian areas. The use of chemicals in the treatment of weed species has the potential to directly impact some non-target species (such as endangered fish), but the reestablishment of natural vegetation structure and function would increase the habitat conditions for all species over the long-term. These chemicals would not be used in close proximity to listed species to ensure they are not affected by these actions. Special care would be taken near streams and watercourses to ensure poisons are not entering these systems. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to non-target species. NEPA analysis would be required prior to project initiation.

Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. Special status species habitat would be targeted as a top priority for removal of weed species. There is the potential for continued degradation of special status animal species habitat in areas left untreated.

Wild and Scenic Rivers

There are 223 miles of river recommended suitable in this Plan. These segments would be managed for the preservation of identified outstandingly remarkable values. This could prevent damming and diversions on upstream segments (and associated disruption of special status animal species habitat downstream) if such activities would harm identified outstandingly remarkable values.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities to special status animal species habitat described previously. Research on restoration ecology in conjunction with the adaptive management framework (Appendix 3) would provide mechanisms for restoration of these areas in the future.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. Short-term loss of habitat would result to species dependent on these areas for foraging, such as the spotted owl. This habitat would quickly return to these areas, as population numbers would rebound for prey species as forage increased. Most of the Monument is located in fire management areas which have little suppression activity. This would allow fire to reach a larger size, but would protect special status animal species from the surface disturbing effects associated with motorized travel off of designated routes. Emergency use of equipment, such as chaining, for fire restoration has the potential to impact vegetation associations by clearing vegetation, and biological soil crusts, which allows for erosion. These methods would not be used for management ignited fires and are only allowed under limited circumstances as described in the **Vegetation Restoration Methods** section of Chapter 2. Native species would be used in these areas as a priority to restore native habitat for prey species.

Wildlife Services (Animal Damage Control)

The use of poisons or methods which target entire populations would not be allowed in the Monument, as described in the **Wildlife Services** section of Chapter 2. Restrictions on Wildlife Services activities in the Monument would prevent inadvertent poisoning of listed species resulting in decreased pressures on these species populations.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to special status animal species would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, VRM.*

IMPACTS ON WATER QUALITY

Introduction

Water resources within and around the Monument are vital to sustaining many of the Monument's resources. Among others, these resources include the communities of plants and animals associated with hanging gardens, seeps, springs, tinajas, and with ephemeral, intermittent, and perennial streams and ponds. Sensitive plant and animal species also rely upon scarce water resources, as do the riparian zones and entire natural systems that support those and other species. The maintenance of water quality is also of great economic importance to the surrounding communities and the ranching industry within the region.

Summary of Effects

Negative, short-term impacts to water quality in the Monument could result from activities that decrease vegetative cover and increase soil erosion. These types of activities would include facilities construction, maintenance of routes, livestock grazing, increased visitor use, and vegetation restoration. There is a potential for cumulative surface disturbance of approximately 360 acres from reasonably foreseeable activities such as recreation facilities, rights-of-way, and water developments over the 15 year planning horizon. Much of the surface disturbance associated with recreational facilities would occur in areas already disturbed by existing camping or other uses. Subsequently, acres of disturbance from these activities would likely be less than are reported here. In addition, visitor and livestock use have the potential to cause surface disturbance, which is

Summary of Effects cont.

difficult to estimate. Vegetation restoration methods also have the potential to cause surface disturbance on 20,000 acres over the 15 year planning horizon. These methods would be used to restore native plant associations and would occur primarily in areas already disturbed. Implementation of this Plan would have the long-term, overall effect of improving water quality to the benefit of other Monument resources. Plan implementation would result in improved visitor management, reduction in vehicular travel off of designated routes, and other management practices leading toward restoring natural biophysical systems.

Direct and Indirect Effects of Proposed Actions

Commercial Filming

Commercial filming in the Monument would be limited to minimum impact standards, which include provisions to prevent disturbance which could lead to erosion and water quality degradation. These provisions include: no use of heavy equipment and no travel off of designated routes. A full list of these restrictions is found in Chapter 2, **Commercial Filming**.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way has the potential to directly impact water quality through clearing vegetation and biological soil crusts, allowing for erosion of soil. These sites have the potential, depending on the location and setting, to create temporary sediment increases to surface streams in the immediate vicinity. However, these sites are typically located in upland areas along ridge tops or buttes and water quality near the site is usually not an issue. Nonetheless, before any sites are permitted, an evaluation of impacts to water quality would be made through a NEPA process, and alterations to the proposal or appropriate water quality protection measures (e.g., sediment and erosion control) would be taken. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed in the Monument over the next 15 years disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing knowledge about the conditions of springs, wells, seeps, diversions, and other water-related features, or which result in stabilizing or preserving at risk resources, would be encouraged. Monitoring initiated as part of the adaptive management framework (Appendix 3) would provide information regarding the condition of water quality in the Monument and would provide a mechanism for alteration in management if degradation was determined to be occurring. Surface-disturbing research activities on other resources may cause temporary degradation of water quality in the immediate vicinity. Surface disturbing research projects would be evaluated by the BLM and the GSENM Advisory Committee would be consulted for recommendations on, whether research proposals warrant

Inventory, Monitoring, Research and Adaptive Management cont.

exceptions, could be permitted in a manner consistent with the protection of Monument resources, and whether the methods proposed are the minimum necessary to achieve desired research objectives.

Livestock Grazing

Livestock grazing has the potential to impact water quality through the removal of vegetative cover, which thereby increases soil erosion and subsequently increases the turbidity of streams. In riparian areas, livestock waste has the potential to increase the bacterial content of the water in streamcourses. Livestock grazing within the Monument would be managed in keeping with applicable laws and regulations, and with the statewide Standards for Rangeland Health and Guidelines for Grazing Management. In evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on water quality would be assessed and appropriate actions under the Standards and Guidelines would be taken. Water quality of springs and water-bodies is currently being monitored in the Monument and would be continued to determine if impacts are occurring.

Recreational Facilities and Use

Construction of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) directly impacts surface water quality by temporarily increasing sediment load to nearby watercourses. Following construction of facilities, increased visitor use in and around the site(s) may indirectly degrade water quality within nearby surface water courses and within shallow ground water aquifers. Impacts to water quality from recreational use would generally occur within ¼ mile of areas with water. The BLM is currently embarking on a comprehensive water quality monitoring effort to ensure that State and Federal water quality standards would be met. Monitoring of other water sources (e.g., springs, streams) in the vicinity of facilities would be initiated if degradation to water quality was determined. Visitor management at the facility could then be modified in order to reduce water quality degradation.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Dispersed primitive camping and pack stock use in these zones may lead to impacts to water quality from soil destabilization and subsequent erosion. Group size restrictions of 12 and 25 respectively would reduce the potential for these impacts. Where impacts are documented in a given area, camping may be restricted to a designated and clearly delineated area away from sensitive resources. This would limit more widespread impacts and disturbance. Such areas would only be used for resource protection purposes in these zones and would most often be designated in areas currently disturbed by camping use. Limits on the number of people in these areas through the implementation of an allocation system would also help to reduce impacts from this type of use.

While new recreation facilities (other than signs and trails) would not be allowed in riparian areas, direct and indirect impacts to water quality from the use of facilities within ¼ mile of riparian areas (which are indicative of water resources) may occur. Currently there are 15 recreation sites within ¼ mile of riparian habitat, possibly contributing to water quality impacts as mentioned previously. Due to the small number of potential

Recreational Facilities and Use cont.	**new sites (32 over 15 years, all outside riparian areas), impacts to water quality are not expected to be substantial from these new sites. Some of these facilities would simply be efforts to better delineate existing parking areas and trailheads to minimize and concentrate disturbance in a smaller area. This would protect sensitive water resources over a larger area.**

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Surface disturbance would occur as described previously for recreation sites. The use of these areas and surface disturbance in these areas are not expected to contribute to impacts on water quality because these sites would be located away from open water. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to water quality would be addressed.

Riparian Resources Program

Throughout the Monument, riparian resources would be managed so as to either maintain or improve proper functioning condition. This overall management goal to improve riparian zones would indirectly improve water quality throughout the Monument.

Special Status Species Program

Programs to protect and promote the recovery of populations of threatened and endangered plant and animal habitats within the Monument would both directly and indirectly improve water quality. Because many of the Federally listed species within the Monument are associated with riparian habitats, the management prescriptions to protect these species would also help protect the riparian habitat from disturbances. This would, in turn, provide indirect protection of water quality within the Monument.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the Transportation and Access and Emergency and Management Exceptions sections of Chapter 2). This would afford substantial protection from surface disturbance and erosion that could lead to degradation of water quality. There is the potential for impacts to water quality from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the Enforcement section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Use of 1,080 miles of designated open routes, including administrative routes, may contribute to impacts on water quality from erosion and subsequent increases in sedimentation. It is assumed that this type of impact would occur where routes are in close proximity to watercourses due to the increased potential for erosion.

171

BEST COPY AVAILABLE

Transportation cont.

There are 54 places where designated and administrative routes cross riparian habitat (which is indicative of sensitive water resources). Projected increases in use would increase the potential for this type of impact.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This increased surface disturbance in the Outback Zone has the potential to contribute to water quality impacts in these areas.

Maintenance of designated routes has the potential to impact water quality as described for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of designated routes in the Monument, and could possibly occur on 192 miles of administrative routes, but these activities would not be allowed outside the current disturbance on most of the routes (see the **Maintenance** section in Chapter 2). In the limited cases where maintenance activities would occur outside of the existing disturbance, impacts to water quality would be a primary concern, and measures to prevent temporary and long-term water quality impacts (sedimentation and erosion control measures) would be taken.

This Plan would close approximately 1,087 miles of routes currently open to public travel, eliminating impacts from those routes crossing riparian habitat and water resources. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing indirect impacts from erosion in these areas. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in some impacts to water quality from erosion in the interim until routes are closed and restored.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. Although there may be temporary impacts to water quality immediately after fires, the restoration of a natural range of native plant associations in the Monument would improve water quality in affected watersheds. Chaining and seeding may be used in limited, emergency situations after wildfire where loss of soil and degradation of water quality are anticipated.

Water Issues

It is reasonably foreseeable that 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when necessary for the overall protection of Monument resources. The indirect effects of these activities would be the same as for other surface disturbing activities and associated use as described previously. Maintenance of existing water developments has the potential to cause some minor surface disturbance. Project level NEPA analysis would be completed prior to the authorization of any construction activities. One of the overall goals of prescriptions for water development within the Monument is to improve water quality. Water

Water Issues cont.

developments would often be used to displace use away from sensitive riparian habitat where water quality degradation would be an issue. Impacts that may occur from diverting surface water or taking groundwater from nearby areas would be assessed during the NEPA process. In general, water developments could only be allowed if they do not degrade riparian habitat through de-watering of natural springs or perennial streams.

Weed Management

Non-native plants and noxious weeds displace native species and affect the structure of plant associations. Noxious weeds can also impact water quality by displacing native species and de-watering of streams and drainages. Control of noxious weeds is a priority of the BLM in order to achieve general vegetation management objectives. Use of chemicals (aerial spraying, hand spraying, and painting), hand cutting, biological control agents, and manual pulling are all viable methods for control of noxious weed species. The long-term effect of the control of weeds within the Monument would be beneficial to water quality as the goal is to help restore natural systems. Short-term effects of weed control projects in and around riparian zones, particularly those using chemical agents, may degrade water quality if herbicides wash into stream courses or enter shallow ground water systems. Aerial spraying could only be used in limited circumstances as described in Chapter 2. Project level NEPA analysis would be completed prior to initiation of weed control projects. BLM employees or contractors with appropriate certification would be responsible for use of these chemicals and would take precautions to prevent possible effects to surface and ground water. Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. There is the potential for continued degradation of water quality in areas left untreated.

Wild and Scenic Rivers

There are 223 miles of rivers that would be recommended suitable in this Plan. These segments would be managed for the preservation of identified outstandingly remarkable values. This could prevent damming and diversions on upstream segments, and associated effects on water quality and quantity downstream from these sites, if such actions would harm identified outstandingly remarkable values.

Wilderness Study Area Protection

Until legislation takes affect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the direct and indirect impacts of surface disturbing activities on water quality, as mentioned previously.

Wildfire Management, Management Ignited Fires, and Fire Restoration

The overall goal of the fire management program would be to help restore native vegetative associations and natural systems. The long-term effects of this program would be the improvement of water quality through decreased sediment and salinity loads. Short-term negative effects of management ignited fires and fire management may include localized increases in turbidity and salinity of nearby streams. Project-level NEPA analysis would be completed prior to initiation of fire management projects.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to water quality resources would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Collections, VRM, Wildlife Services.*

IMPACTS ON AIR QUALITY

Introduction

Typical of undeveloped regions in the western United States, ambient pollutant levels in and around the Monument are usually near or below the measurable limits. The entire management area has been designated as either attainment or unclassified for all pollutants and has also been designated as Prevention of Significant Deterioration (PSD) Class II. Nearby PSD Class I areas include Capitol Reef, Canyonlands, and Arches National Parks to the east and north, Bryce Canyon and Zion National Parks to the west, and Grand Canyon National Park to the South.

Summary of Effects

Implementation of this Plan would help maintain the air-shed of the Monument as PSD Class II. Reductions in the number of routes open to the public and eliminating cross-country vehicular travel would lessen the amount of fugitive dust across the Monument. Short-term degradation to the air quality could occur from management ignited fires and surface disturbing activities. The Navajo Generating Station (NGS) at Page, Arizona, a point source of airborne sulfur compounds to the area, consists of three 750 MW units which burn up to 25,000 tons of coal per day. The NGS plant has recently completed the installation of the first of three wet limestone scrubbers which will remove most of the sulfur dioxide from the emission plumes of the plant.

Direct and Indirect Effects of Proposed Actions

Air Quality Program

The entire management area has been designated as either attainment or unclassified for all pollutants and has also been designated as PSD Class II. There are no actions proposed in this Plan that would cause long-term effects to air quality, although increases in vehicular use on designated open and administrative dirt routes (986 miles) has the potential to cause temporary increases in fugitive dust. The BLM would work to maintain the PSD Class II air-shed, and would work with surrounding land management agencies to prevent deterioration of their Class I air-sheds. High, short-term, localized concentrations of particulates (primarily wind blown dust), ozone, and carbon monoxide have the potential to occur in the Monument from natural and human disturbance. Locations vulnerable to decreasing air quality, generally on the periphery of the Monument, include the areas around mining and farm tilling, local population centers affected by residential emissions, and areas affected by long-range transport of pollutants.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way has the potential to impact air quality by clearing vegetation and biological soil crusts, allowing for wind erosion of soil and the generation of fugitive dust. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way would be constructed in the Monument over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres, (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). This would lessen the generation of

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way cont.

fugitive dust from these activities in this part of the Monument. All areas would be reseeded with native vegetation resulting in a reduction of fugitive dust from the site after completion of the project.

Livestock Grazing

Livestock grazing has the potential to have short term impacts on air quality by trampling and consumption of vegetation. Additionally, concentrating use around range facilities has the potential to decrease vegetation in close proximity to these facilities. These activities have the potential to contribute to the generation of fugitive dust in the area. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands. Healthy rangelands also prevent wind erosion and the degradation of air quality by fugitive dust generation.

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) have short-term impacts on air quality through clearing vegetation and biological soil crusts, and from increased visitor use around sites, allowing for wind erosion of soil and the generation of fugitive dust.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, eliminating the generation of fugitive dust from these activities in this part of the Monument. Use in these zones would be low, due to accessibility and group size restrictions, reducing the potential for trampling and surface disturbance contributing to the short-term generation of fugitive dust. Although there is the potential for 32 new recreation sites disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres), some of these sites are already used for this purpose. Better delineation of these sites and installation of fences would limit the size of the disturbed area, resulting in a reduction in wind erosion and air quality degradation. This small amount of disturbance would not contribute substantially to air quality impacts. For all proposed sites, restoration activities would reseed disturbed sites in order to reduce continued surface erosion. Concentrating use into a smaller area, where use could be accommodated without affecting sensitive resources, reduces short-term impacts to air quality over a larger area of the Monument.

It is assumed that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Surface disturbance would occur as described previously for recreation sites. The use of these areas may contribute to fugitive dust and localized, short-term degradation of air quality. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts.

Recreational Facilities and Use cont

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to air quality would be addressed.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would reduce the amount of short-term air quality degradation by fugitive dust generation over a large area of the Monument. There is the potential for impacts to air quality from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

Of the 888 miles of routes designated open, 794 miles are unpaved. Use of these designated open dirt routes would contribute to the fugitive dust and short-term air quality degradation. Projected increases in use would increase the potential for this type of impact. While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This has the potential to lead to an increase in fugitive dust generation in the Outback Zone from increased surface disturbance in this area. Visitors would be encouraged to use areas that were already disturbed, reducing the amount of new disturbance. Clearing of vegetation for pulling off routes would not be permitted, further reducing the potential for fugitive dust generation.

Maintenance of designated routes has the potential to result in air quality impacts as discussed for other surface disturbing activities, such as communication sites and recreation sites. Maintenance activities would occur on 888 miles of designated routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes (see the **Maintenance** section in Chapter 2). The limited cases where maintenance activities would occur outside of the existing disturbance would not contribute substantially to fugitive dust generation and air quality degradation.

There are 192 miles of administrative routes throughout the Monument, all of which are dirt, which have the potential to contribute to short-term impacts on air quality through fugitive dust generation. Use on these routes would be limited and infrequent, minimizing the potential for these impacts. Maintenance of these routes would be the minimum necessary to keep them accessible to high clearance vehicles.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing short-term impacts from fugitive dust generation in these areas. Although restoration would be a priority for the protection of sensitive resources, not all sites can be restored simultaneously, which may result in continued short-term fugitive dust generation and air quality degradation in the interim until routes are closed and restored.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. Restoration of disturbed areas would decrease the amount of bare ground and allow native vegetation to stabilize the soil, reducing the potential for short-term impacts to air quality from fugitive dust generation. Since fire would be the primary tool for completion of these projects, impacts from fire may contribute to air quality as described below.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Management ignited fires have the potential to degrade air quality during the period of the fire, and would cause some fugitive dust from the burned area. These fires would be initiated in accordance with State air quality standards and the BLM would obtain appropriate permits. The long-term effects of management ignited fires would be to reduce levels of particulate matter (due to dust) by restoring native vegetation cover.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to air quality would be expected from proposed decisions listed under the following sections of this Plan: *Collections, Commercial Filming, Inventory, Monitoring, Research and Adaptive Management, Riparian Resource Program, Special Status Species, VRM, Water Issues, Weed Management, Wild and Scenic Rivers, Wilderness Study Area Protection, Wildlife Services.*

IMPACTS ON SCENIC QUALITY

Introduction

The wealth of landforms, geology, colors, elevation changes, and vegetation types in the Monument contribute to its outstanding scenery. The BLM's objective would be to preserve these spectacular scenic assets by conforming to assigned Visual Resource Management (VRM) class objectives and meeting other visual quality objectives such as (1) using natural or natural appearing material, (2) meeting restoration/revegetation objectives, and (3) complying with the Monument Facilities Master Plan.

Summary of Effects

This Plan would provide long-term, overall improvement of the scenic qualities of the Monument. Restoration of areas containing non-native vegetation would be a focus, as would restoration of closed routes. New visitor facilities, primarily located within the Frontcountry and Passage Zones (6 percent of the Monument), could contrast with the surrounding landscape. New facilities such as pullouts, parking areas, and interpretive sites would be minimal, however, disturbing a total of only 16 acres, and would be designed to meet visual resource quality objectives as discussed in Chapter 2. Surface disturbing projects would generally not be permitted within about 65 percent of the Monument (Primitive Zone). Vegetative restoration methods would focus on restoring the natural vegetation from prior disturbance, also resulting in less contrasting landscapes.

Direct and Indirect Effects of Proposed Actions

Air Quality Program

Implementation of this Plan would provide for maintenance of a Class II air-shed across the Monument, and no activities would be permitted that would degrade the Class I air-shed on adjacent land-management units. This would protect the scenic qualities of the Monument from impacts associated with poor air quality (e.g., diminished sight distance).

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for communication sites, utility rights-of-way, and road rights-of-way has the potential to impact scenic quality by placement of facilities and clearing of vegetation and biological soil crusts, causing visual contrasts with the surrounding area. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way would be constructed in the Monument over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. All sites would have to meet visual resource quality objectives, and placement would take into account scenic quality impacts in the area (see VRM below). These sites would generally not be allowed on 1,211,386 acres, (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). All areas would be reseeded with native vegetation, resulting in a reduction of contrast directly surrounding these sites after completion of the project.

Livestock Grazing

Livestock grazing has the potential to have impacts on scenic quality by causing cattle trails, trampling and consumption of vegetation. Additionally, concentrating use around range facilities has the potential to impact sites in close proximity to these facilities, increasing visual contrast around these sites. Livestock grazing within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. All new range facilities would be required to meet visual resource quality objectives. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands, promoting native plant growth and reducing visual contrasts.

Recreational Facilities and Use

Clearing areas for the placement of visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) and subsequent use of these sites contributes to visual contrasts and impacts to scenic quality.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, except for those necessary to protect resources. Use in these zones would be low due to accessibility and group size restrictions, reducing the potential for trampling, surface disturbance and scenic quality degradation in these areas. Although there is the potential for 32 new recreation sites (e.g., picnic areas, parking areas), disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres), many of these sites are already used for this purpose. All sites would be required to meet visual resource quality objectives. Better delineation of

Recreational Facilities and Use cont.

these sites and installation of fences would limit the size of the disturbed area. This small amount of disturbance would not contribute substantially to scenic quality impacts. For all proposed projects, restoration activities would reseed disturbed sites in order to reduce contrasts with surrounding areas. Concentrating use into a smaller area, where use could be accommodated without affecting sensitive resources, reduces visual contrasts over a larger area of the Monument.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts to scenic quality.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to scenic quality would be addressed.

Riparian Resources Program and Special Status Species Program

The overall objective of restoring riparian habitat to proper functioning condition and protecting special status species habitat would enhance visual qualities by decreasing vegetation contrasts. Restoring degraded areas would re-introduce native vegetation that, in the long-term, would blend more favorably with surrounding habitats.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access and Emergency and Management Exceptions** sections of Chapter 2). This would reduce the amount of vehicle tracks in un-roaded areas over a large area of the Monument. There is the potential for impacts to scenic quality from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

The continued presence of 1,080 miles of designated open and administrative routes throughout the Monument would contribute to the visual impacts. While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This has the potential to lead to an increase in visual contrast adjacent to these routes in the Outback Zone from increased surface disturbance in this area. Visitors would be encouraged to use areas that were already disturbed, reducing the amount of new disturbance. Clearing of vegetation for pulling off routes in this zone would not be permitted, helping to reduce the amount of visual contrast.

Transportation cont.

Maintenance of designated routes has the potential to result in scenic quality impacts if maintenance occurs outside of the current disturbance. These activities would not be allowed outside the current disturbance on most of the routes (see the **Maintenance** section in Chapter 2). The limited cases where maintenance activities could occur outside of the existing disturbance would not contribute substantially to scenic quality degradation.

This Plan would close approximately 1,087 miles of routes currently open to public travel. Chapter 2 describes a strategy for closing and restoring these routes to conditions present before disturbance, minimizing visual contrasts and scenic quality degradation in these areas. Although restoration would be a priority for the protection of sensitive resources, not all routes can be restored simultaneously, which may result in continued visual contrasts in the interim until routes are closed and restored.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. These projects may lead to temporary visual contrasts, but restoration of native plant associations would reduce this contrast in the long-term. For example, a seeding which is primarily crested wheatgrass may be burned or seeded to restore native plant associations in the area.

Removal of forestry products would only occur on the 23,950 acres designated for that use, unless more areas are identified as necessary to meet the objective of restoring a natural range of native plant associations. These activities may create visual contrasts with the surrounding areas, but existing and new areas would take into account the impacts on scenic quality and the long-term restoration of native vegetation.

Restoration and revegetation provisions, as discussed in Chapter 2, are required for all surface disturbing activities in the Monument as part of the project planning process. These provisions would decrease visual contrasts immediately surrounding these projects.

Visual Resource Management

The VRM program for the Monument is designed to reduce the visual impact of past, present, and future development projects. Scenic quality is affected by surface disturbance, which creates a contrast with the natural environment as mentioned above. Approximately 68 percent of the Monument is categorized as Visual Class II, in which the objective is to retain the existing character of the landscape. The remaining 32 percent is categorized as Visual Class III, in which the objectives are to partially retain the existing character of the landscape and to prevent management actions from dominating the view. All projects would assess impacts to visual quality and would have to be designed to create as little visual contrast as possible, regardless of the VRM classification.

BEST COPY AVAILABLE

Water Issues	It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted when necessary for the protection of Monument resources. These water developments have the potential to cause visual impacts, but would be designed to limit visual contrasts as much as possible. Project level NEPA analysis would be completed, and visual resources would be taken into account prior to the authorization of any construction activities.
Weed Management	Non-native plants and noxious weeds displace native species and affect the structure of plant associations. The replacement of native species by noxious weed species often creates a visual contrast in an area, until those species completely replace native vegetation. Once established in disturbed sites, weeds may spread into adjacent undisturbed lands causing further visual contrasts. Conversion of vegetation structure by noxious weed species can make reestablishment of native plant associations difficult, if not impossible. An active noxious weed control program would focus on the removal of these species. Although removal of noxious weed species in the Monument is a priority, not all areas can be targeted for removal efforts simultaneously. There is the potential for continued impacts to scenic quality in areas left untreated.
Wild and Scenic Rivers	Scenic quality is one of the outstandingly remarkable values for which rivers were found suitable. Of the 223 miles of river found suitable, approximately 202 miles have scenic quality which would be protected as an outstandingly remarkable value. This would contribute to the overall scenic quality of the Monument.
Wilderness Study Area Protection	Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This would prevent much of the scenic quality degradation from these activities in WSAs.
Wildfire Management, Management Ignited Fires, and Fire Restoration	Scenic quality could be directly affected both during and following natural or management ignited fires. During the fires, localized air quality would deteriorate temporarily, and following the fires, vegetation contrasts would be very noticeable. Natural and management ignited fires, however, have been rare within the boundaries of the Monument, and restoration of these areas with native species would reduce visual contrasts over the long-term.
Proposed Actions with no Reasonably Foreseeable Effects	No reasonably foreseeable effects to scenic quality would be expected from proposed decisions listed under the following sections of this Plan: *Collections, Commercial Filming, Inventory, Monitoring, Research and Adaptive Management, Wildlife Services.*

IMPACTS ON WILD AND SCENIC RIVER VALUES

Introduction

Wild and Scenic River (WSR) values are those outstandingly remarkable values (ORVs) identified for river segments in the WSR planning process (Appendix 11). These ORVs include: scenic, recreational, geologic, fish and wildlife, ecological (riparian), botanical, paleontological, hydrological, and scientific study. Impacts on each of these values Monument-wide are discussed in individual sections of this chapter. For example, impacts on paleontological resources are discussed in detail in the **Impacts on Paleontological Resources** section. As such, detailed impacts on each of these resources are not repeated here. Instead, general discussions of overall impacts on suitable WSR segments are included. Actions that may affect the free-flowing status of suitable rivers are also included. Impacts on identified ORVs for rivers found eligible, but found non-suitable, are covered under the specific resource impact sections (e.g., riparian, paleontology), since these values would be protected under general plan provisions.

Summary of Effects

Impacts to WSR values could result directly from activities such as diverting water from streams, livestock grazing, and use of routes and trails in riparian areas that lead to impacts on the ORVs for which the streams were determined suitable. These segments would be protected from these impacts such that the ORVs for which they were determined suitable are not degraded. Plan provisions such as limiting development and disturbance in riparian areas would contribute to that protection.

Direct and Indirect Effects of Proposed Actions

Collections

The unauthorized collection of objects is prohibited by the Proclamation and this Plan. Unauthorized collection of objects in and around rivers determined suitable for WSR designation may impact ORVs for which these rivers were determined suitable. Interpretive information would be provided to visitors in high-use areas concerning the sensitivity of resources and the prohibition on collection.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

The placement of communication sites, utility rights-of-way, and road rights-of-way would not be allowed in suitable river segments where ORVs may be affected. Proposed projects in close proximity to these resources would be evaluated for impacts to ORVs and relocated if necessary to avoid impacts to these values.

Livestock Grazing

Livestock grazing has the potential to impact WSR values directly by trampling vegetation and through bank erosion, which could degrade the riparian system. This degradation to the riparian system could include impacts to ORVs such as threatened and endangered plants or animals, archaeological resources, etc. Management of livestock grazing within the Monument would be in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. Each grazing allotment would

Livestock Grazing cont.	be evaluated to ensure that grazing management conforms with these Standards and Guidelines and does not impact ORVs.
Recreational Facilities and Use	New recreation sites (except limited signs and trails for resource protection) would not be permitted in riparian areas, including suitable WSRs. This would protect the ORVs on these river segments from the direct impacts from installation activities. There are 10 existing recreation sites within ¼ mile of suitable river segments, possibly leading to impacts to ORVs from destruction, collection or degradation. These areas would be monitored, and restrictions on visitor use (allocations, smaller group size limits, etc.) would be used where impacts to ORVs are occurring.
Riparian Resources Program	The overall objective of the riparian resources program within the Monument would be to manage riparian areas so as to maintain or restore them to properly functioning condition. This program would enhance the habitat for ORVs such as southwestern willow flycatcher and Ute ladies'-tresses (special status species). The riparian resources program would indirectly affect WSR values by improving riparian condition for ORVs in these areas.
Special Status Species Program	The special status species program within the Monument, as described in Chapter 2, would indirectly affect WSR values by providing increased protection for listed and sensitive species and their habitat, some of which are ORVs for suitable river segments. This increased protection, along with implementation of recovery plans, should result in increased population viability over time.
Transportation	There are 19 miles of suitable WSRs segments within ¼ mile of designated open routes and 1.5 miles of suitable WSR within ¼ mile of administrative routes. Use on these routes would be unlikely to impact any ORVs on these river segments, but travel off these routes has the potential to result in destruction, collection, or degradation of ORVs. These areas would be monitored and protected as described above.
Visual Resource Management	The VRM program for the Monument is designed to reduce the visual impact of development projects. Scenic quality is one of the ORVs for which rivers were found suitable. Of the approximately 202 miles of suitable river segments that have scenic quality as an ORV, approximately 201 miles are within a VRM class II category with an objective of retaining the existing character of the landscape. The remaining 1 mile is within a VRM Class III, which would allow some changes to the character of the landscape. Regardless of the VRM classification, the ORVs for suitable segments (including scenic quality) would be considered and protected and visual resource quality objectives described in Chapter 2 would be met.
Water Issues	It is reasonably foreseeable that 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted in cases where an overall benefit to Monument resources could be demonstrated. These water

Water Issues cont.

developments would not be placed in areas where impacts to the ORVs or the free-flowing status of suitable segments may occur. These water developments would most often be used to displace use away from sensitive riparian habitat where ORVs would occur. Water developments would not be allowed to jeopardize or de-water streams, thus the free-flowing status of these segments would be protected.

Weed Management

An active noxious weed control program would help remove weed species from areas where impacts to ORVs, such as threatened and endangered plant species may occur. Although removal of noxious weed species in sensitive habitats is a priority in the Monument, not all areas can be treated simultaneously, leading to possible effects to ORVs in some areas.

Proposed Actions with No Reasonably Foreseeable Effects

No reasonably foreseeable effects to WSR values would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Commercial Filming, Inventory, Monitoring, Research and Adaptive Management, Vegetation Management, Wild and Scenic Rivers, Wilderness Study Area Protection, Wildfire Management, Management Ignited Fires, and Fire Restoration, Wildlife Services.*

IMPACTS ON WILDERNESS VALUES ("Impacts to Primitive Unconfined Values" in the DEIS)

Introduction

Wilderness values include naturalness, outstanding opportunities for solitude, and primitive and unconfined type of recreation opportunities. Values may also include ecological, geological, or other features of scientific, educational, scenic, or historical value. Wilderness values can be affected by noticeable imprints of humans, recreation that requires motorized and mechanized equipment or facilities, and the ability of a user to find solitude. These values were used by the BLM in designating some 880,857 acres of WSAs in the Monument prior to designation. Recently (1999), the BLM completed a reinventory of potential "wilderness character" lands within Utah. As a result of this reinventory, an additional 457,049 acres of BLM lands within the Monument have been noted as possessing "wilderness character," and may eventually become classified as Wilderness Study Areas. This section discusses impacts on wilderness values of both designated WSAs and areas found to have wilderness character.

Summary of Effects

Implementation of this Plan would enhance wilderness values, as management prescriptions call for limited visitor development and protection of the frontier quality that enhances Monument resources. Restoration programs would be performed as part of vegetation and riparian restoration. Other prescriptions such as VRM, route and trail closures, and visitor management would effectively enhance wilderness values.

The largest potential for conflicts between wilderness values and Proposed Plan prescriptions is in the Frontcountry and Passage Zones (6 percent of the Monument), where facilities such as interpretive signs, pull-outs, and picnic areas may be allowed. There are 14,228 acres of existing WSAs within these two zones. As

Summary of Effects cont.

discussed in the **Wilderness Study Areas** section of Chapter 2, where conflicts occur between the zone prescriptions and existing WSA management under IMP, IMP would take precedence until action is taken by Congress to either designate them or release them from further protection.

Outside of designated WSAs there are 26,616 acres found to have wilderness character within the Frontcountry and Passage Zones. The BLM would continue to give careful consideration before acting affirmatively on any proposals for activities within these areas, and NEPA analysis would be required. In this process, the BLM would evaluate the potential for harm to wilderness character areas, and proposed actions may be modified or the "No Action" Alternative would be considered if actions were deemed to have the potential to negate the area's eligibility for wilderness designation. Nonetheless, actions could be taken in these areas that may impair their wilderness values.

Direct and Indirect Effects of Proposed Actions

Commercial Filming

Commercial filming activities in the Monument would be limited to minimum impact and are restricted by many provisions which would prevent surface disturbing impacts from occurring, as discussed in Chapter 2. Solitude opportunities have the potential to be directly affected during the duration of a particular filming activity (minimum-impact filming would not continue for more than 10 days). Where there are wilderness values in the Frontcountry and Passage Zones, there would be a greater possibility for impacts to solitude due to the large group sizes allowed or lack of groups size restrictions. Minimum-impact filming within all zones would need to conform to the zone prescription for types of equipment needed, group sizes, and project duration.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

Clearing areas for the placement of communication sites, utility rights-of-way, and road rights-of-way has the potential to directly impact wilderness values by causing surface disturbance. Erosion resulting from biological soil crust and vegetation loss and soil destabilization during these activities has the potential to further degrade these areas. It is reasonably foreseeable that 1 large and 22 small communication or utility rights-of-way facilities, and 3.5 miles of road rights-of-way, would be constructed over the next 15 years, disturbing 150, 102, and 8.4 acres respectively. These sites would generally not be allowed on 1,211,386 acres of the Monument, protecting wilderness values from these impacts. Areas with wilderness character outside WSAs would be the most likely to be affected by these activities, but there would be consideration of these values during site selection. Project level NEPA analysis would be completed for all projects, taking into account impacts to wilderness values. A feasibility study for communication sites in the Monument would be completed, identifying appropriate areas for construction of these facilities.

Livestock Grazing

Livestock grazing has the potential to impact primitive wilderness values through increased soil-erosion due to vegetation removal. Management of livestock grazing within the Monument would be in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands. Healthy rangelands also prevent erosion and further degradation of soils. Monitoring in conjunction with grazing management would provide information on changes in vegetation and soil condition which may affect wilderness values, allowing for changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3).

Recreational Facilities and Use

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, which include 98 percent of designated WSAs and 94 percent of areas with wilderness character in the Monument. Dispersed primitive camping and pack stock use in these zones may lead to impacts to solitude but group size restrictions of 12 and 25 respectively would reduce the potential for these impacts. Limits on the number of people in these areas through the implementation of an allocation system would also help to reduce impacts from this type of use.

There is the potential for construction of 32 new recreation sites, disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres). This could impact wilderness values in wilderness character areas, but would not impact WSAs directly as long as they are under IMP protection, because such developments are not allowed under IMP. Increased use associated with sites near areas with wilderness values has the potential to impact wilderness character areas and WSAs from increased use associated with new sites. Delineation of these sites and installation of fences and interpretive signs would limit the size of the disturbed area.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing up to 70 acres. This has the potential to result in impacts to solitude and cause surface disturbance in areas with wilderness values. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Theses areas would also not likely be located in WSAs due to IMP protection. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts.

Prior to the construction of any facility in the Monument, project level NEPA analysis would be completed and site specific impacts to wilderness values would be addressed.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would protect WSAs and areas with wilderness character from the intrusions and surface disturbance

BEST COPY AVAILABLE

Transportation cont.

associated with this vehicle use off of routes. There is the potential for direct and indirect impacts to wilderness values from unauthorized vehicle travel off of designated routes in the Monument. Enforcement, as described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

By definition, areas that have wilderness values do not have routes present. While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This would not be allowed in areas where WSAs are in close proximity to routes, which only accounts for 2 miles in this zone. This has the potential to affect areas with wilderness character that abut routes in the Outback Zone (137 miles).

Maintenance of designated routes has the potential to cause surface disturbance and affect solitude in areas adjacent to routes. Maintenance activities would occur on 888 miles of designated routes in the Monument, but these activities would not be allowed outside the current disturbance on most of the routes and would not be allowed where WSAs abut routes (see the **Maintenance** section in Chapter 2).

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. Due to the surface disturbance associated with previous vegetation manipulations, these areas generally do not occur within WSAs or areas with wilderness character. Removal of forestry products would only occur on designated areas and would not occur in WSAs. There are 2,317 acres of forestry product areas in areas with wilderness character.

Visual Resource Management

The VRM program for the Monument is designed to reduce the visual impact of development projects. Scenic quality is integral to primitive experiences which areas with wilderness values possess. Approximately 662,898 acres of WSAs and 298,516 acres with wilderness character are within a VRM class II category with an objective of retaining the existing character of the landscape. The remaining 217,240 acres of WSA and 157,835 acres with wilderness character are in VRM class III, which would allow some changes to the character of the landscape. Regardless of the VRM classification, WSA IMP would prevent surface disturbance in areas designated as WSAs and visual resource quality objectives as described in Chapter 2 would be met in all areas.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on the 880,857 acres currently designated as WSAs. Under this policy, intrusive, mechanized forms of activities are either prohibited or severely restricted, thereby enhancing opportunities for wilderness experience.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Although fire is not a major component of the Monument's ecosystems, natural fires do occasionally occur in the area. Short-term loss of vegetation would result from fires, but would quickly regrow in areas with diverse vegetation within a growing season. Impacts from fire suppression activities can have a profound effect on

Wildfire Management, Management Ignited Fires, and Fire Restoration cont.

vegetation, changing the way water moves across the landscape and causing erosion. These effects are difficult to reverse, especially in dry climates such as the Monument's.

Fire would be allowed to play its natural role in most of the Monument, except where noted in this Plan for the protection of private property or other features. Most of the Monument is located in fire management areas which have little suppression activity, including most WSAs and areas with wilderness character. Heavy equipment use in the Monument is only allowed through authorization of the Monument Manager. A resource advisor familiar with WSA issues would be consulted on all fires in the Monument that involve WSAs. Emergency use of equipment, such as chaining, for fire restoration could be used under limited circumstances as described in Chapter 2. This could be done to establish native species and prevent erosion and degradation of habitat, but would not occur in WSAs unless compatible with IMP.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to wilderness values would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Collections, Inventory, Monitoring, Research and Adaptive Management, Riparian Resources Program, Special Status Species Program, Water Issues, Weed Management, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON RESEARCH ACTIVITIES

Introduction

The primary purpose for establishing GSENM is to protect the scientific and historic resources as described in the Proclamation. Monument management priorities and budgets would focus on obtaining a comprehensive understanding of the resources of the Monument, while assisting in the development of improved and innovative land management. The first priority for conducting BLM-sponsored research would be to study, collect, or record scientific information that is most at risk of being damaged or lost through disturbance or the passage of time, including oral histories and ethnologies related to the Monument area. The second priority would be to continue gathering baseline data on the biological, physical, cultural, and social sciences within the Monument. A third priority would be to conduct applied research regarding the management of natural systems, including disturbance and recovery strategies.

Summary of Effects

This Plan has the potential to affect future research activities within the Monument, affording more opportunities in some respects, but creating more restrictions for some types of research. Research activities directed at studying the broad effects of past land management and restoration practices on various resources would be afforded new opportunities as several new programs are planned. Research activities requiring vehicular access or use of mechanized equipment may be affected by restrictions on travel off of designated routes.

Direct and Indirect Effects of Proposed Actions

Collections	The unauthorized collection of objects is prohibited by the Proclamation and this Plan. Scientific collection could be authorized in conjunction with research projects in the Monument. These projects would be evaluated for their merits and permits would be issued for collection when projects are determined to contribute to the understanding of the natural, physical and social environment of the Monument and the Colorado Plateau ecosystems.
Inventory, Monitoring, Research and Adaptive Management	Non-surface disturbing scientific research would be supported and encouraged, but intrusive or destructive investigations would be carefully reviewed to avoid conflicts with the BLM's responsibility to protect and preserve scientific and historic Monument resources. The GSENM Advisory Committee would play a role in evaluating research proposals and making recommendations to management on projects that may need exceptions to plan prescriptions. A comprehensive and integrated research and science program would ensure that scientific resources are not only available for current research opportunities, but that certain scientific resources are preserved in place for future study. The adaptive management framework described in Appendix 3 may directly affect research activities through increasing the amount of inventorying and monitoring, thereby increasing opportunities for study.
Livestock Grazing	Livestock grazing has the potential to impact resources as discussed under the impacts for the individual resources. Degradation of these resources may reduce the potential for scientific study of these affected objects.
Recreational Facilities and Use	Inventories conducted prior to construction of recreational facilities have the potential to indirectly affect research activities by providing a small amount of new scientific data (paleontology, archaeology, etc.). Increased visitor use in the immediate vicinity of recreational facilities has the potential to cause surface disturbance and degradation of resources, resulting in damage and thereby directly impacting some research opportunities.
Riparian Resources Program	The goal of the riparian program is to restore riparian zones to "proper functioning condition." The program has the potential to directly affect research by providing additional riparian research opportunities. Research projects requiring surface disturbance would be discouraged or prohibited in riparian zones.
Special Status Species Program	Cooperation with the USFWS has the potential to provide additional research opportunities for management of threatened and endangered species. Some surface disturbing research projects may be directly affected by special status species, as intrusive activities would generally be precluded from threatened and endangered species areas.

Transportation

Zone prescriptions, including restrictions on travel off of designated routes, would generally apply to researchers, except where extremely high-value opportunities for scientific discovery exist (see **Management of Science and Research** in Chapter 2). In addition, route closures may preclude access to some areas of potential research. Thus, routine research projects that require vehicular access may be directly affected by the prohibition on cross-country travel and route closures. Projects that require motorized or mechanized access where no designated route exists would have to be evaluated to determine if they warrant exceptions, if the proposed research could be permitted in a manner consistent with the protection of Monument resources, and whether the access proposed is the minimum necessary to achieve the desired research objective.

An indirect effect of route closures would be that some types of resources, such as riparian zones or sensitive soils, would not be degraded further by the action of vehicles and visitor activities. This has the potential to provide more opportunities for research on restoration strategies. Fewer routes could reduce visitor impacts to research areas or research sites that previously had vehicle access.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. Opportunities would exist for research on restoration ecology in the completion of these vegetation projects. Effects of forestry product collection and use of non-natives also provide opportunities for research.

Weed Management

An active weed removal program would facilitate research in the removal of invasive, non-native plants, and research in the area of recovery of native plant associations. Opportunities would be afforded indirectly for the study of the relationships of weed removal to wildlife populations, water quality, and soil stabilization. The removal of noxious weed species may cause unanticipated effects on plant and animal species, and other resources, possibly affecting research opportunities for these species or resources.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. These restrictions provide opportunities for study and research based on these intact systems, but research relying on surface disturbance or mechanized access could be prohibited by these restrictions.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Part of the science and research program would be to study the effects of fire on the Monument's native and non-native plant associations. The opportunities for studying fire ecology within the Monument may occur, but would not be significant due to the limited amount of natural fire that occurs in the area. The study of restoration fire ecology would also help to determine appropriate restoration protocols. Fires and suppression

BLANK PAGE

Wildfire Management, Management Ignited Fires, and Fire Restoration cont.

activities also have the potential to impact specific sensitive resources, such as archaeological sites. These activities may destroy these resources, eliminating these resources for comparison study.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to research activities would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Commercial Filming, Communication Sites, Utility Rights-of-Way, Road Rights-of-Way, VRM, Water Issues, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON RECREATIONAL USE

Introduction

The Monument is outstanding among America's great places where solitude, unconfined experiences, and a sense of adventure still exist. Visitor use in the area has been steadily increasing. Visitor use peaks in April and May, and again in September and October.

The BLM provides camping in two small developed areas in the Escalante Canyons region of the Monument. There are no developed campgrounds in the Grand Staircase or Kaiparowits regions. Most visitors to the Monument camp in remote, dispersed, primitive areas. There is a developed picnic area at the Paria movie set and a parking area at Grosvenor Arch.

Summary of Effects

A variety of recreational opportunities would be available within the Monument. Impacts to recreational use would result primarily from closing areas to certain types of use (such as prohibiting travel of vehicles off of designated routes) and from conflicts with other uses (such as livestock grazing, commercial filming, and other recreational users). It is reasonably foreseeable that 32 new recreation sites and 35 new designated primitive camping areas would be designated or constructed over the 15 year planning horizon. These facilities would accommodate visitation and provide visitors with educational materials and experiences. These facilities would generally not be allowed on 1,211,386 acres, which would accommodate visitors looking for a primitive and self-directed experiences. Group size restrictions and allocations would limit the number of people in much of the Monument, but would also promote primitive experiences. The lack of group size restrictions or allocations in the Frontcountry Zone would provide large groups with opportunities in the Monument. There would be 888 miles of designated routes for travel by visitors, with 556 of these available for ATV use.

Direct and Indirect Effects of Proposed Actions

Commercial Filming

Permits for commercial filming in the Monument would continue to be issued for "minimum impact" activities. Filming activities could lead to conflicts between filming crews and recreational users, although the conflicts would be only short-term (activities would not be allowed longer than 10 days). Increased filming of the area could publicize the area, resulting in increased visitation and recreational use of the Monument. This may lead to fewer opportunities for solitude and primitive experiences in some of the Monument.

Inventory, Monitoring, Research and Adaptive Management

Non-surface disturbing research activities which focus on increasing the knowledge of visitor use patterns as well as impacts created by recreational use would be encouraged. These studies may indicate where and when use patterns are shifting. Monitoring in conjunction with other resource programs, discussed throughout this chapter, may indicate that impacts from visitor and recreational use are occurring. These data may lead to restrictions on visitor numbers in an area, through the implementation of an allocation system, in order to protect these resources. Seasonal restrictions, physical barriers, interpretive displays and educational material may also be used to reduce impacts to sensitive resources. The adaptive management framework (Appendix 3) would provide the mechanism for changes in management based on new data being gathered.

Livestock Grazing

Livestock grazing has the potential to impact recreational use by contaminating water sources and by altering vegetation. Additionally, although some visitors may enjoy viewing livestock and livestock operations in the Monument, others may find their presence an aesthetic and physical intrusion. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. In the evaluation of allotments as part of the Standards and Guidelines implementation, the effects of livestock grazing on other land uses, including recreation, would be evaluated.

Recreational Facilities and Use

Each of the zones provides different types of visitor experiences, as described in the **Zone Management Direction** section of Chapter 2. The facilities included in this discussion are: trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones. This would limit the amount of directed recreation opportunities in these zones, but would provide for vast opportunities for solitude and self-directed experiences for which the Monument is known. Dispersed primitive camping and pack stock use would be permitted in these zones, but resource damage may lead to the designation of primitive camping areas. Group size restrictions of 12 in the Primitive Zone and 25 in the Outback Zone would limit the number of large groups in these zones, but self-directed primitive experiences would be enhanced by these restrictions. Limits on the number of people in these areas through the

Recreational Facilities and Use cont.

implementation of an allocation system would also benefit the primitive experiences, but may reduce the number of people able to access these opportunities.

There is the potential for the construction of 32 new recreation sites in the Frontcountry and Passage Zones (116,372 acres). These sites would be developed mainly in areas already used for these activities or in some cases in new areas to highlight Monument resources. These sites would provide visitors looking for directed recreation opportunities with trails, interpretive sites and parking areas. Highlighting Monument resources in these areas would provide visitors with information and educational experiences. Increased use may lead to overcrowding in these areas due to the limited number that would be developed.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing up to 70 acres. Visitors looking for primitive camping areas near the edge of the Monument would be accommodated by the designation of these camping areas. Most of these areas would be designated where primitive camping currently occurs, and amenities (such as toilets, water, etc.) would not be provided. Two existing campgrounds in the Monument and developed campgrounds in areas outside of the Monument would provide visitors the only developed campground experiences.

Riparian Resources Program

The overall objective of the riparian resources program within the Monument would be to manage riparian areas so as to maintain or restore them to properly functioning condition. This program would enhance these riparian areas and would provide the widest variety of vegetation and habitat diversity for wildlife and fish, as well as watershed protection. These objectives would indirectly affect recreational use of the Monument by providing a more pristine environment for visitors to experience. However, restrictions on recreational use in these areas may close or limit access to specific areas during restoration. This would reduce the opportunity for visiting these areas.

Special Status Species Program

The BLM is required to protect these species from impacts. If recreational use is determined to be the cause of impacts to populations of Federally-listed-species, allocations or barriers may be installed to prevent further degradation. Interpretive information and educational materials would be provided in order to educate visitors about the sensitivity of these resources.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). This would restrict visitors looking for a motorized experience to the 888 miles of designated routes (543 miles for non-street legal vehicle use). Visitors looking for a more primitive experience, away from vehicles, would find ample opportunity throughout the Monument. There is the potential for unauthorized vehicle travel off of designated routes in the Monument, affecting visitors looking for a more primitive experience. Enforcement, as

BEST COPY AVAILABLE

193

Transportation cont.

described the **Enforcement** section of Chapter 2, would reduce the possibility of unauthorized use off of these routes.

While motorized and mechanized travel is limited to designated routes, there is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes). This would provide visitors with areas for dispersed camping. Visitors would be encouraged to use areas that were already disturbed, and clearing of vegetation would not be permitted.

All designated open routes within the Monument would be maintained to current conditions, some of which would be accessible by passenger vehicles, while others would be seasonally available for high clearance vehicles. Lack of route improvements and development may restrict access for some visitors into areas of the Monument. See the **Maintenance** section of Chapter 2 for a full discussion of these activities.

Vegetation Management

Vegetation restoration methods may be used to restore and promote a natural range of plant associations in the Monument. Although visitors may notice these treatments, educational materials and interpretive displays would be used to educate the public regarding restoration projects in the Monument.

Visual Resource Management

Visual resources management can affect recreational experiences within the Monument to the extent that the character of the landscape is retained or altered. The **Impacts on Scenic Quality** section in this chapter discusses the management of scenic quality, including visual resources management.

Water Issues

It is reasonably foreseeable that up to 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted in cases where an overall benefit to Monument resources could be demonstrated. Water developments could be provided for recreational use in the Frontcountry and Passage Zones, although the circumstances in which they would be allowed would be extremely limited since the only facilities that would be provided are a small number of modest pullouts, parking areas, trailheads, and picnic sites.

Impacts to water quality come from removal of vegetation, displaced soil particles, increased soil compaction, creation of new flow paths and channels, and increased runoff. These impacts can be caused by a variety of sources, including vehicles, people, livestock, and wildlife, especially near riparian areas. There is the potential for degradation of water quality from these uses, making water unavailable or unusable for recreational use. This degradation of water quality may also require the restriction of these uses, including recreational use, in order to restore water quality.

Weed Management

Removal of noxious weeds such as tamarisk and Russian olive would likely increase water in areas where these plants are removed. A variety of methods may be used to control these invasive species, including use of chemicals. The use of these chemicals may require the temporary closure of areas to recreational use. Visitors may also be excluded from treated areas for a period of time in order to ensure the success of weed removal and the reestablishment of native plant species.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Management ignited fire may be used in order to promote and restore native plant associations. Use of fire would have short-term impacts on the visitor experience, including smoke and visual effects. Visual effects of wildfires would occur, but fires occur infrequently in the Monument, reducing the potential for these impacts. The effects of smoke on visitor experiences would be temporary. Visitors may also be excluded from burned areas for a period of time in order to facilitate the reestablishment of native plant species.

Wildlife Services (Animal Damage Control)

Animal Damage Control activities could directly impact recreational use if the activities were observed by visitors. These activities could indirectly impact recreational use by removing animals that are part of the experience visitors may seek. Wildlife Services activities within the Monument would be limited to the taking of individual coyotes within the immediate vicinity of verified livestock kills, where reasonable livestock management measures to prevent predation had been taken and failed. No traps, poisons, snares, or M44s would be allowed. Limiting the allowable methods would reduce potential conflicts with recreational users.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to recreational use would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Communication Sites, Utility Rights-of-Way, Road Rights-of-Way, Wild and Scenic Rivers, Wilderness Study Area Protection.*

IMPACTS ON OUTFITTERS AND GUIDES

Introduction

Outfitter and guide services have operated within the Monument area for many years prior to the Monument's designation. These services provide various types of primitive to catered recreational experiences. Outfitter and guide operations would be allowed throughout the Monument, in compliance with the constraints of the zone, and allocation and use limits set by the BLM.

Summary of Effects

Changes to transportation routes and zone restrictions would have effects on outfitter and guide services operating within the Monument. Route closures and restrictions on travel off of designated routes could affect how outfitters and guides shuttle clients and pack stock to ingress and egress points. Zone restrictions such as group size limits also may require outfitters and guides to alter trip arrangements to accommodate the changes in management. Further impacts on outfitter and guide operations would be similar to those discussed under **Impacts on Recreational Use** section in this chapter. These impacts are not repeated in this section.

Direct and Indirect Effects of Proposed Actions

Recreational Facilities and Use

Pullouts, trailheads and interpretive sites located within 116,372 acres of the Frontcountry and Passage Zones would offer outfitters and guides facilities for assisting with their operations. A lack of such facilities within the remaining 1,749,048 acres of the Outback and Primitive Zones would provide clients a more remote experience.

Group size restrictions of 25 people (Passage and Outback Zone) and 12 people and 12 pack stock (Primitive Zone) may affect outfitter and guide operations that cater to larger groups. Most of these services in the Monument have historically catered to groups equal or smaller than these limits, thus impacts should not be substantial. An exception to the group size limit in the Paria River corridor in the Primitive Zone (25 people instead of 12) is included in this Plan. This would allow outfitters and guides operating in that area to continue to guide larger groups, if consistent with protection of resources.

Other restrictions on recreational activities and visitor use could affect the activities that outfitters and guides engage in within the Monument. These restrictions include limitations on campfire use, camping, collections, and other activities. These impacts are discussed in more detail in the **Impacts on Recreational** Use section of this chapter. Limits on the overall numbers of people visiting an area (allocations) would also apply to outfitters and guides if those limits become necessary to protect Monument resources.

Transportation

The changes to transportation and access within this Plan may affect the operations of outfitters and guides more than any other aspect. As many existing routes would be closed, outfitters and guides may need to alter trips and itineraries in order to conform to these closures. Outfitters and guides that use OHVs and bicycles as part of their business would be required to confine these vehicles to the 543 miles of routes designated as open to their use.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to outfitters and guides would be expected from proposed decisions listed under the following sections of this Plan: *Air quality Program, Collections, Commercial Filming, Communication Sites, Utility Rights-of-Way, Road Rights- of-Way, Inventory, Monitoring, Research and Adaptive Management, Livestock Grazing, Riparian Resources Program, Special Status Species Program, Vegetation Management, VRM, Water Issues, Weed Management, Wild and Scenic Rivers, Wilderness Study Area Protection, Wildfire Management, Management Ignited Fires, and Fire Restoration, Wildlife Services.*

IMPACTS ON LIVESTOCK OPERATIONS

Introduction

Livestock operations occur throughout the Monument. Livestock use is permitted at different times and seasons throughout the year, although this use does not occur everywhere or in the same areas every year. The majority of livestock permittees do not graze on the Monument year-round. There are 73 separate grazing allotments within the Monument (Appendix 6).

Summary of Effects

Most impacts to livestock operations would come as a result of actions taken outside the scope of this Plan, since the Proclamation stated that livestock grazing would be "governed by applicable laws and regulations other than [the] proclamation." This Plan outlines a process for managing existing permits and levels of grazing under existing laws and regulations, including the Utah Standards and Guidelines. Some Proposed Plan actions have the potential to impact livestock operations. For example, policies on the use of non-native species, vegetation management, and the placement of water developments could have effects on these operations. Restrictions on visitor use (such as group size) and restoration of native species could offset these impacts to some extent.

Direct and Indirect Effects of Proposed Actions

Inventory, Monitoring, Research and Adaptive Management

Monitoring of rangeland health, in accordance with applicable laws and regulations and the Utah Standards and Guidelines for Rangeland Health, would indicate if range conditions were being degraded. Monitoring activities would continue in the Monument, with adaptive management framework (Appendix 3) providing information on how to modify management actions to reduce impacts to Monument resources from grazing activities. Actions taken to change livestock use in response to monitoring and adaptive management would be initiated through the Utah Standards and Guidelines for Rangeland Health. These actions, which would be determined on a case-by-case basis, may affect livestock operations.

Livestock Grazing

Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. The **Livestock Grazing** section in Chapter 2 describes a process for implementing the Standards and Guidelines in a separate process from this Plan. This process would result in the evaluation of allotments, determinations of rangeland health, and the development of allotment management plans. Since this process is governed by existing laws and regulations, its impacts on grazing management would be assessed in associated NEPA documents other than this Plan.

Recreational Facilities and Use

Visitor site facilities (trailheads, interpretive sites, parking areas, picnic areas, pullouts, designated primitive camping areas, trails, and toilets) could directly impact livestock operations through disruption to livestock movement and/or grazing patterns. Recreational users could also leave gates open, resulting in unscheduled

Recreational Facilities and Use cont.

livestock use. This occurs particularly in canyons where interactions with humans are more likely to occur. In addition, use of sites has the potential to degrade surrounding vegetation, allowing for erosion of soil and further degradation of vegetation/forage.

New recreation sites would generally not be allowed on 1,749,048 acres in the Primitive and Outback Zones, eliminating the impacts to livestock operations in this part of the Monument. Use in these zones would be low due to accessibility and group size restrictions, reducing the potential for trampling and surface disturbance. Although there is the potential for 32 new recreation sites, disturbing 16 acres in the Frontcountry and Passage Zones (116,372 acres), many of these sites are already used for this purpose. Better delineation of these sites and installation of fences would limit the size of the disturbed area, resulting in a reduction in vegetation degradation in the surrounding areas. This small amount of disturbance would not contribute substantially to impacts on livestock operations. For all proposed sites, restoration activities would reseed disturbed sites in order to reduce contrasts with surrounding areas. Livestock would be excluded from restored areas for a period of time to facilitate establishment of native species.

It is reasonably foreseeable that 35 new primitive camping areas could be designated in the Frontcountry and Passage Zones, disturbing 70 acres. Surface disturbance would occur as described previously for recreation sites. Most of these areas would be designated where primitive camping currently occurs, so new surface disturbance would actually be less than 70 acres. Camping would not be allowed elsewhere in these two zones (except in existing campgrounds), reducing the potential for more widespread impacts to vegetation and livestock operations.

Special Status Species Program

The BLM, in conjunction with the USFWS, the UDWR and adjacent agencies, is required to protect Federally listed plant and animal species from actions that would lead to population decline or extinction. Furthermore, the BLM would work with these agencies to promote the recovery of these species. If livestock grazing was determined to be the cause of impacts to populations of Federally-listed species, actions would be taken to eliminate these impacts, including exclusion of cattle from these areas.

Transportation

The type and availability of access are factors which affect the ability of livestock permittees to operate within the Monument. Under this Plan, motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access and Emergency and Management Exceptions** sections of Chapter 2). There are currently 888 miles of designated routes open for public travel; 543 miles of these would be open to OHV use. In addition, administrative use of those routes shown on Map 2.1 would be allowed to certain authorized users, including grazing permittees. Additional access could be authorized if access is considered necessary for the operation of grazing permits. These access restrictions

Transportation cont.

could facilitate livestock operations by reducing vehicular access for the general public. Restricted public access has the potential to reduce livestock harassment, damage to range improvements, and gate problems.

Vegetation Management

Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires. These projects would lead to a long-term restoration of native plant associations, which may or may not benefit forage for livestock. The increased diversity of native species in these areas may provide equivalent forage for livestock in these areas. However, livestock may be excluded from those areas for a period of time after treatment in order to ensure the success of the vegetative treatment and the reestablishment of native plant species.

Removal of forestry products would only occur on the 23,950 acres of designated fuelwood cutting areas, unless more areas are identified as necessary to meet the objective of restoring a natural range of native plant associations. These areas are typically pinyon and juniper woodlands which, as a result of impacts from livestock, wildlife and fire suppression, have little understory and herbaceous growth. Opening of areas through thinning would allow shrub, grass and forb species to increase, improving the condition of these vegetation associations.

Restoration and revegetation provisions, as discussed in Chapter 2, are required for all surface disturbing activities in the Monument as part of the NEPA process. These provisions would decrease impacts to vegetation and forage as described previously.

Water Issues

It is reasonably foreseeable that 10 new water developments, disturbing 10 acres over the next 15 years, could be permitted in cases where an overall benefit to Monument resources could be demonstrated. These water developments would most often be used to displace livestock use away from sensitive riparian habitat. Monitoring in conjunction with the Utah Standards and Guidelines for Rangeland Health would indicate when this would be necessary.

Weed Management

Removal of noxious weeds would increase forage in areas that were previously unpalatable to livestock. However, in order to ensure the success of weed removal and the reestablishment of native plant species, livestock may be excluded from those areas for a period of time after treatment.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Restoration after fires would include returning disturbed areas to a natural range of native plant associations. Previously used non-native forage species would not be used in reseeding after fires. Livestock grazing after native seedings would be modified to ensure the survival of these native species. The livestock exclusion

Wildfire Management, Management Ignited Fires, and Fire Restoration cont.

period required to allow full establishment of native species and recovery after wildfires msy be two years or more. Site evaluations would be required to determine when native seedings could be grazed again and the effectiveness of the current or new grazing system on the persistence of native species.

Wildlife Services (Animal Damage Control)

Animal Damage Control activities within the Monument would be limited to the taking of individual coyotes within the immediate vicinity of verified livestock kills, where reasonable livestock management measures to prevent predation had been taken and failed. This has the potential to reduce predation, which would directly impact livestock operations by removing animals known to have killed livestock. However, restricting allowable methods (by not allowing traps, poisons, snares, or M44s) has the potential to impact livestock operators' ability to control predators.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to livestock operations would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Collections, Commercial Filming, Communication Sites, Utility Rights-of-Way, Road Rights-of-Way, Livestock Grazing, Riparian Resources Program, VRM, Wild and Scenic Rivers, Wilderness Study Area Protection.*

IMPACTS ON FORESTRY PRODUCT USE

Introduction

Forestry product use in the Monument includes collection of personal use fuelwood, juniper posts, and Christmas trees. Collecting of dead and down wood would be allowed where campfires are allowed (see the **Camping** section in Chapter 2). There are also limited areas currently designated for green fuelwood and post cutting. Current forestry product collection use is low. No commercial timber harvesting has occurred in the Monument for decades.

Summary of Effects

Removal of forestry products could occur on the 23,950 acres that were already designated as fuelwood cutting areas prior to this Plan. Restrictions on travel off of designated routes may impact these activities, but additional areas may also be designated if necessary to meet the objective of restoring a natural range of native plant associations.

Direct and Indirect Effects of Proposed Actions

Inventory, Monitoring, Research and Adaptive Management

Research activities which focus on increasing the knowledge of pinyon and juniper woodlands would be encouraged and could provide new areas in the Monument where forestry product collection would be allowed. The adaptive management framework in Appendix 3 would provide the mechanism for designating new forestry product collection areas in the Monument. These areas would be allowed in conjunction with the overall vegetation management objective of promoting a natural range of native plant associations. Monitoring

Inventory, Monitoring, Research and Adaptive Management cont.	in areas where forestry product collection is currently occurring could indicate impacts to Monument resources, and restrictions on cutting in these areas may follow.
Special Status Species Program	Collection of forestry products would only occur in areas specifically designated for these activities. No collection would occur in areas where special status species occur. If a special status species were discovered in a designated area, that area would be closed, which would impact forestry product collection activities.
Transportation	Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and **Emergency and Management Exceptions** sections of Chapter 2). There is a provision for pulling no more than 50 feet off of designated routes for parking or primitive camping in the Outback Zone (618 miles of routes) where current forestry product collection areas are located. These restrictions would apply to people participating in forestry product collection activities and may limit their ability to access cutting areas and to haul these products away. This Plan would close approximately 1,087 miles of routes currently open to public travel, some of which would be in forestry product collection areas. These routes would not be available for forestry product collection activities and may impact these activities by restricting access and the ability for these users to haul products away. The limited number of route closures in these areas would not substantially impact forestry product collection activities.
Vegetation Management	Vegetation restoration methods would be used primarily to restore previously seeded or otherwise disturbed areas to a natural range of native plant associations. It is reasonably foreseeable that this restoration work could be completed on 1,000 to 3,000 acres per year, or up to 20,000 acres over 15 years. These treatments would primarily consist of management ignited fires, but could include the removal of pinyon and juniper by other means. These projects may provide a temporary opportunity for the collection of forestry products in the Monument. Removal of forestry products could occur on the 23,950 acres currently designated as fuelwood cutting areas in the Monument. These areas are the same as they have been for years. Thus, this use would not be substantially restricted as a result of this Plan. Future reduction of the size of these sites may impact these activities, but additional areas may be designated if necessary to meet the objective of restoring a natural range of native plant associations.
Visual Resource Management	Areas cleared of vegetation can be visually obtrusive. VRM classes have been established for the entire Monument. These would be considered in decisions for designating new areas for forestry product collection. This could restrict opportunities to add new areas as old areas are harvested.

Wilderness Study Area Protection

Until legislation takes effect to change their status, the BLM's IMP would prevent most surface disturbance on 880,857 acres currently designated as WSAs. This restricts opportunities to add new areas for the removal of forestry products.

Wildfire Management, Management Ignited Fires, and Fire Restoration

Areas where wildfires have occurred may provide a temporary opportunity for collection of forestry products, if such collection would help meet the overall vegetation management objective of promoting a natural range of native plant associations. While these opportunities would be limited, they would still provide additional areas where forestry product collection could occur.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to forestry product use would be expected from proposed decisions listed under the following sections of this Plan: *Air Quality Program, Collections, Commercial Filming, Communication Sites, Utility Rights-of-Way, Road Rights-of-Way, Livestock Grazing, Recreational Facilities and Use, Riparian Resources Program, Water Issues, Weed Management, Wild and Scenic Rivers, Wildlife Services.*

IMPACTS ON LOCAL ECONOMIES

Introduction

The Monument Planning Office contracted with the Utah Governor's Office of Planning and Budget to provide data and analysis relating to the economic and social impacts of this Plan. The Utah Governor's Office of Planning and Budget report presented background data on the economics and demographics of the region surrounding the Monument, and detailed the process and results of the analysis of socio-economic impacts. A summary of this information is provided below. More detailed information about background data and the analysis process can be found in Appendix 12.

Summary of Effects

Overall, the economic impacts of this Plan on local economies are expected to be positive, but small. The annual growth in visitation is assumed to be 5.2 percent, with 442,633 visitor days in 2012. Regional population growth attributable to this Plan would be 422 people in 2012. By 2012, the additional employment generated would be 248 jobs. Employee earnings would reach $6.6 million in 2012 and net revenue to local governments attributable to implementation of this Plan would be $598,000. Many factors that are not directly the result of BLM actions, but may be influenced by how the Monument is managed, may also have socio-economic impacts on the region. These include growth in the region leading to increased needs for local government services and infrastructure, and changing economies and character of the region due to an ongoing transition toward a greater reliance on tourism.

Economic and Demographic Context

The impacts of this Plan have been modeled at the regional level which includes: Beaver, Iron, Garfield, Kane, and Washington Counties. This is because the people of the region are interdependent economically and socially, and the region forms a functional economy. In addition, the region has a closed labor market in the sense that about 90 percent of the income generated in the region is also received there, and, conversely, about 90 percent of the income received in the region is also generated there.

The Monument is located in both Garfield and Kane Counties. The population in both Kane and Garfield Counties can be characterized relative to the State as small, sparsely distributed, increasing slowly, and relatively old. Approximately 10,500 people live in the area. Population growth in the Counties has generally been lower than the State average, and populations in both Counties are among the oldest in the State.

These unique demographic characteristics are closely associated with the economic realities faced by both Counties. The population is small because there are relatively few employment opportunities for local residents. The population is old and net out migration is common because many of those aging into the labor force have to leave to find work.

The performance of the economies in Kane and Garfield Counties can be characterized as cyclical and sluggish compared to the vibrant performance of the State's economy in recent years. Both Counties struggle with unemployment rates higher than the State average, per capita personal income lower than the State average, and a lack of employment diversity.

Many of the economic problems in both Counties can be explained by a general lack of diversity in the economic structure. The area relies heavily on the economic performance of just four major industries: agriculture, government, timber, and tourism. The first three of these industries are fairly stagnant or declining. For instance, while agriculture is an important economic resource to both Counties, employment in agriculture has been stagnant and at times declining for many years. Employment in the timber industry has been cyclical and declining as sawmills have downsized and closed. Employment in local, State, and Federal government has been increasing, but slowly. It is mainly in the tourism industry that employment growth has been sustained. In fact, dependence on the tourism industry has steadily increased.

Impacts of this Plan

The impacts of this Plan are driven by BLM spending and employment, as well as visitor spending. The direct, indirect, and induced effects of this employment and spending on population, employment, employee earnings, and local government revenues in southwest Utah are the focus of this analysis. Key findings of the analysis follow.

Impacts of this Plan cont.

Overall impacts of this Plan on the southwestern Utah population base are relatively small. The largest increase in population is during construction of new Monument facilities in the year 2000, in which 961 people are projected. However, in 2001 this number is expected to decline to 284 and then grow slowly each year to reach 422 additional persons to the population base in 2012.

Employment attributable to Monument activities is expected to peak during facility construction in the year 2000, when Monument activities could add 615 jobs to an employment base of 74,457 in southwestern Utah. However, in 2001 this number declines to 172 jobs, then increases slowly to 248 jobs in 2012.

For the most part, unchanging direct employment by the BLM results in a fairly steady earnings stream throughout the study period analyzed. However, during facility construction, the highest earnings ($18.4 million) occur in the year 2000. After construction, earnings stay quite steady, ranging between $4.9 million and $6.6 million until 2012.

Net revenues to local governments remain relatively small, again with the construction activities in the year 2000 providing the peak revenue stream. In 2000, net revenues are projected to be $565,000, then increasing steadily from $165,000 in 2001 to $236,000 in 2012. This is a small proportion of expected local government revenues, which total in the tens of millions of dollars.

Other Impacts

The socio-economic impacts reported are driven by two factors: direct BLM spending and employment, and spending by visitors. The direct, indirect and induced effects of this spending on population, employment, employee earnings, and government revenues in the southwestern region are the focus of this analysis. The analysis relies on the current structure of the economy and historical averages to estimate these impacts. However, the economy in southwestern Utah would be affected by many factors that are not directly the result of BLM actions, but may be influenced by how the Monument is managed. Some of these factors may have socio-economic impacts that are even larger than those associated with this Plan analyzed here.

Private enterprises, local government and others make decisions regarding infrastructure, business development, service expansions and the like. These decisions may result in significant economic impacts. For example, a decision made by a private business to open a lodging establishment could have the effect of capturing more visitor spending, employing more people, and generating higher tax revenues. Similarly, decisions made about restaurants, tow truck companies, car rental companies, outdoor supplies sales/rental companies, grocery stores, tour guides, and research projects are not decisions made by the BLM, but impact the southwestern economy and are not captured in this analysis.

Other Impacts cont.

Another example of factors beyond the scope of this analysis includes actions taken by local governments. Local governments may need to increase or decrease levels of services such as emergency search and rescue, law enforcement, emergency medical services, road maintenance, police protection, fire protection, waste management services, etc. Decisions about service levels would affect revenues and expenditures.

Many small rural communities in the western United States that have been supported by extractive industries or agriculture have experienced a transition toward greater reliance on tourism. This of course drives a different type of development in these communities, bringing in services that had not previously been present and changing the economies and character of these communities. Property values are often driven upward and greater demands are made on local governments to provide for the increased infrastructure and service needs. Adequate data does not exist to systematically evaluate or quantify these potential impacts to the area.

IMPACTS ON ADJACENT AGENCIES MANAGEMENT

Introduction

Several Federal land management units border the Monument. On the west side lies Bryce Canyon National Park, portions of the Dixie National Forest, as well as Kodachrome Basin State Park, and other lands managed by the BLM. Along the northern boundary lies primarily Dixie National Forest. To the east lies Capitol Reef National Park and Glen Canyon National Recreation Area, and to the south lies the southern part of Glen Canyon National Recreation area and other lands managed by the BLM. Consideration of the management of these adjacent Federal land units was of primary importance during planning consistency and consultation with adjacent agencies. A discussion of potential impacts on the Monument from action of adjacent agencies is included in the **Cumulative Impacts** section of this chapter.

Summary of Effects

Implementation of this Plan could result in a wide range of visitation effects on adjacent land management units. However, because the Monument experiences relatively low visitation compared to most other agencies, few detrimental impacts on adjacent units would be expected. Recent notoriety concerning the Monument has resulted in more people becoming aware of its existence. Some people come to the region specifically to spend time within the Monument, which could result in increases in visitation on adjacent agencies. Other people wishing to experience the surrounding National Parks may choose to spend time investigating the new Monument. This could result in visitors spending less time in the National Parks and more time in the Monument. Other aspects of management concerning environmental programs (e.g., vegetation, riparian, fire) are generally currently in place and would continue.

Direct and Indirect Effects of Proposed Actions

Air Quality Program

The entire management area has been designated as either attainment or unclassified for all pollutants and has also been designated as PSD Class II. All BLM actions and use authorizations would be designed or stipulated so as to protect air quality within the Monument and the Class I areas on surrounding Federal lands. Site-specific project proposals affecting BLM and adjacent lands would be reviewed for compliance with existing laws and policies protecting the areas. Projects would be designed to minimize further degradation of existing air quality. There are no new emission sources proposed in the Monument.

Collections

The unauthorized collection of objects, as described in the **Collections** section of Chapter 2 is prohibited by the Proclamation and this Plan. These restrictions would help protect areas adjacent to National Park Service lands where these activities are also prohibited. Due to the fact that collection of some items (e.g., plant parts, rocks) is permitted on U.S. Forest Service lands and adjacent BLM lands, collections on these lands may increased from the displacement of these activities.

Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way

The placement of communication sites, utility rights-of-way, and road rights-of-way, has the potential to have visual impacts on adjacent land management agencies if these facilities were visible from adjacent agency land. These sites or rights-of-way would generally not be allowed on 1,211,386 acres, (except for communication sites, which may be allowed throughout the Monument for safety purposes only, and road rights-of-way for private inholdings). In areas where they would be allowed, sites or rights-of-way would have to meet visual resource quality objectives and placement would take into account scenic quality impacts on adjacent land management agencies.

Inventory, Monitoring, Research and Adaptive Management

Inventory and monitoring activities by the BLM within the Monument would be coordinated with adjacent land management agencies as much as possible. Many of the studies that are initiated by the BLM and adjacent agencies have application for all agencies administering lands on the Colorado Plateau. The coordination of efforts for study of resources could take the form of interagency teams, shared resources, and the extension of projects onto adjacent lands. Any surface disturbing research projects that are in close proximity to adjacent lands, or which may affect adjacent agencies (i.e., downstream from a surface disturbing activity) would be coordinated with these agencies to ensure that impacts were not occurring to resources on their lands.

Livestock Grazing

Livestock use has the potential to indirectly impact adjacent agencies lands by accelerating erosion, leading to degradation of water quality in these areas. Livestock grazing uses within the Monument would be managed in keeping with applicable laws and regulations, and with the Utah Standards and Guidelines for Rangeland Health. Proper grazing and vegetation management, as outlined in the Standards and Guidelines, maintains natural vegetation composition, structure and function of rangelands. Healthy rangelands also prevent erosion and

Livestock Grazing cont.

degradation of soils and water. Monitoring in conjunction with grazing management, provides information on changes in condition, allowing for changes in grazing management strategies in conjunction with the adaptive management framework (Appendix 3).

Recreational Facilities and Use

Although there are 32 recreation facilities and 35 primitive camping areas foreseeable over the next 15 years, these facilities would occur primarily in areas already used for these purposes and would be on the periphery of the Monument. More developed campgrounds on adjacent U.S. Forest Service and National Park Service lands would most likely not be impacted by these facilities. People who otherwise would spend time on surrounding National Park Service lands or National Forest lands would possibly be attracted to Monument lands due to the new designation. Five new Monument visitor contact facilities located in gateway communities would provide visitors with Monument information, and would tend to concentrate visitors in these communities. Conversely, recreational restrictions such as group size limits within the Monument could cause people to seek recreational opportunities on adjacent lands such as U.S. Forest Service lands or BLM lands where group sizes limits are larger.

Riparian Resources Program and Special Status Species Program

Restoration of riparian areas within the Monument would also help improve water quality downstream within Glen Canyon National Recreation Area. The protection of special status species would be coordinated across agency boundaries for those species with distributions beyond the Monument's boundaries. These coordinated activities would help to protect and restore these species and their habitat on Monument as well as adjacent agency lands.

Transportation

Motorized and mechanized travel off of designated routes would not be allowed, except in limited situations (see the **Transportation and Access** and the **Management and Emergency Exceptions** sections in Chapter 2). There are 1,080 miles of designated open and administrative routes. Of these open routes, 543 miles would be open to use by OHVs. Due to these restrictions on mechanized and motorized use within the Monument, OHV and bicycle use has the potential to increase on adjacent U.S. Forest Service and other BLM lands where these activities are not as strictly regulated. However, OHV use is estimated to be fairly low in the Monument based on data collected in the Recreation Management Information System. Thus, displacement of current use would not be extensive, although overall increases in use in the region have the potential to disproportionately increase use on adjacent agency land.

Visual Resource Management

The management of visual resources on the Monument can affect scenic vistas from adjacent land management agencies. As discussed above in the *Communication Sites, Utility Rights-of-Way, and Road Rights-of-Way* section, all developments would have to meet selected VRM classes and objectives. Visual impacts on adjacent agencies would be taken into account in site specific NEPA analysis for all proposals.

Water Issues

The management of streams and riparian areas has the potential to impact water quality and quantity on downstream agencies. Construction of recreation sites, management of grazing, and other activities could affect

Water Issues cont.

water downstream. However, the objective of the BLM would be to protect water quality in the Monument and ensure that adequate water is available to sustain Monument resources (see the **Impacts on Water Quality** section in this chapter). Efforts to meet these objectives would protect water downstream.

Weed Management

The BLM is presently working cooperatively with adjacent agencies toward controlling and managing weed problems within and around the Monument. These activities would provide increased protection for vegetation and wildlife species in the Monument and on adjacent agencies lands. Although the removal of noxious weed species is a priority in the Monument, not all areas can be treated simultaneously. If weed populations in the Monument are left untreated they may spread onto adjacent agencies lands. Cooperative control programs would likely reduce these impacts.

Wild and Scenic Rivers

In the analysis of stream-course segments within the Monument for recommendations to the National Wild and Scenic River System, the BLM worked closely with the U.S. Forest Service and National Park Service in determining eligibility of stream segments. Because of this coordinated effort, there are consistent eligibility determinations for adjacent segments. Differences in management philosophy and agency missions may result in suitability recommendations that are inconsistent with the BLM's recommendations (although suitability was coordinated across jurisdictions to the extent possible). Regardless of recommendations for suitability, all river segments in the Monument would be protected from degradation that would substantially affect adjacent agencies.

Wildfire Management, Management Ignited Fires, and Fire Restoration

The Color Country Fire Management Area includes the agencies of the U.S. Forest Service, the National Park Service, and the BLM. These agencies work cooperatively on fire management issues throughout the region. The management of fires in conjunction with these agencies would continue under this Plan.

Proposed Actions with no Reasonably Foreseeable Effects

No reasonably foreseeable effects to adjacent agencies management would be expected from proposed decisions listed under the following sections of this Plan: *Commercial Filming, Vegetation Management, Wilderness Study Area Protection, Wildlife Services.*

CUMULATIVE IMPACTS

Introduction

Cumulative impacts are the effects on the environment which result from the incremental impact of this Plan in combination with other past, present, and reasonably foreseeable future actions outside the scope of this Plan, either within the Monument or outside it. Cumulative impacts are discussed because the quality of the human environment is the result of many different factors acting together. The real effect of any single action cannot be determined by considering that action in isolation, but must be determined by considering the likely effect of that action when acting in conjunction with other actions. These involve determinations that are necessarily complex, and are to some degree intuitive.

Cumulative impacts on specific resources, local communities, adjacent agencies, and other users of the Monument that result from BLM actions within the scope of this Plan are included in each of the resource discussions above under the *Summary of Effects* sections. The cumulative impacts discussion below considers this Proposed Plan in the context of the broader human environment. It includes a discussion of factors such as livestock grazing that have brought that environment to its current state, and a discussion of factors such as population growth that could be expected to influence that environment in the future.

Cumulative Effects of Past, Present and Reasonably Foreseeable Future Actions

The lands adjacent to the Monument are generally Federal lands, managed by the BLM, the U.S. Forest Service, and the National Park Service. Management of those lands is likely to protect Monument resources, particularly biological and visual resources that benefit from large contiguous tracts of undeveloped land. However, it is possible that, in the long term, visitation associated with the National Parks and National Recreation Area around the Monument would affect the Monument, both by "overflow" visitation, and through visitor-related developments near the Monument boundary. This could lead to increased surface disturbance and other impacts associated with visitor use described in previous sections.

Water quality within the Monument is, to an extent, dependent upon land and water-use management upstream. Land management practices on adjacent U.S. Forest Service lands along the northern Monument boundary could affect water quality within the Monument. Future logging and road building operations on U.S. Forest Service lands could temporarily degrade surface water quality within the Monument during construction. Conversely, erosion control practices like those at Bryce Canyon National Park may tend to improve overall surface water quality.

Differences in management policies on adjacent agencies could also cause cumulative effects on Monument resources. For example, visitor use on adjacent U.S. Forest Service and BLM lands where some collection is permitted could impact paleontological and biological resources on the periphery of the Monument where boundaries and differing policies are not evident. Likewise, cross-country vehicle use is allowed on adjacent BLM lands, which could result in damage to resources on the periphery of the Monument that are sensitive to surface disturbance. Information would be provided to visitors on the prohibition of collections and cross-country vehicle travel, which would reduce the potential for these impacts. In sensitive areas where collections or cross-country travel occurred before designation, or where these activities become a problem, interpretive displays could be constructed to provide visitors with information restrictions, and enforcement patrols would be emphasized.

Private lands can also have effects on Monument resources. Nearly 15,000 acres of private land exist within the Monument boundary, and the boundary abuts private lands in several areas, largely near adjacent communities. Private lands within the boundaries of the Monument are largely undeveloped and used mainly for livestock operations. Since private landowners generally have rights to reasonable access to their lands across public lands, future requests for road rights-of-way could impact Monument resources sensitive to surface disturbance. These effects should be minimal, however, because only six private land inholdings within the Monument do not have road access. Future needs for utility rights-of-ways to these lands could effect resources, depending upon surface disturbance and visual quality impacts. As discussed in the **Utility Rights-of-Way** section of Chapter 2, the BLM would work with the sponsor of a project to meet this Plan's objectives for protecting resources. Alternative locations for projects would be identified when unavoidable conflicts arise, and projects would be focused in appropriate zones.

Private lands can also have effects on visual resources in the vicinity of the Monument, especially on the periphery of the Monument where housing and other developments could alter the scenic quality. Water resources could also be affected by private lands to the north of the Monument and on inholdings within the Monument. Private landowners that have water rights and divert water out of streams could affect instream flows within the Monument. Return flow from municipal water developments within the communities may also tend to degrade both surface and ground water quality within the Monument.

The **Water** section of Chapter 2 discusses a strategy for ensuring that adequate water is available to protect Monument resources and discusses a monitoring strategy to ensure that water quality is maintained or improved.

Livestock grazing in the region has evolved and changed considerably since it began in the 1860s, and is one factor that has created the current environment. At the turn of the century, large herds of livestock grazed on unreserved public domain in uncontrolled open range. Eventually, the range was stocked beyond its capacity, causing changes in plant, soil and water relationships. Some speculate that the changes were permanent and irreversible, turning plant communities from grass and herbaceous species to brush and trees. Protective vegetative cover was reduced, and more runoff brought erosion, rills and gullies.

In response to these problems, livestock grazing reform began in 1934 with the passage of the Taylor Grazing Act. Subsequent laws, regulations, and policy changes have resulted in adjustments in livestock numbers, season-of-use changes, and other management changes. Given the past experiences with livestock impacts on the resources in the Monument and the cumulative impacts that could occur on the larger ecosystem from grazing on various public and private lands in the region, management of livestock grazing is an important factor in ensuring the protection of Monument resources

The Proclamation which established the Monument stated that "...grazing use shall continue to be governed by applicable laws and regulations." Livestock grazing regulations were most recently revised in 1995, leading to the adoption of the Utah Standards and Guidelines for Rangeland Health in 1997, which are now beginning to be applied Statewide, including within the Monument. The new regulations, and the Standards for Rangeland Health and Guidelines for Grazing Management, give management priority to maintaining functioning ecosystems. Although they are just beginning to be implemented, it is likely that the new regulations, Standards, and Guidelines would have a beneficial effect on Monument resources over time.

The Proclamation closed the Monument to new mineral entry, but valid rights existing at the time of the Proclamation may be exercised. If existing rights were exercised, effects on Monument resources could occur from surface disturbance and infrastructure development. Full development scenarios for mineral activities are not analyzed as discussed in the **Alternatives Considered but Eliminated From Detailed Analysis** section in Chapter 2 of the DEIS. Full environmental analysis would be required at the time development proposals occur.

The area surrounding the Monument is currently sparsely populated. Nevertheless, population growth is among the factors that would influence the Monument environment in the long-term. Population growth in the region is projected to increase by 3 to 4 percent per year over the next 15 years. The potential for development of retirement communities is considered high in the southern part of the region, particularly near the town of Big Water where large amounts of State land are available for development. Tourism in the region, specifically visitation to the Monument and other public lands, is expected to continue to grow, which could add to the level of development beyond that attributable to population growth alone. Such development in the communities surrounding the Monument could lead to more noise and visual impacts, as well as greater demands for water, all of which could impair the quality of the Monument environment.

Several projects have been proposed for future development in or near the Monument, all of which could have impacts on Monument resources. These include the upgrade of PacifiCorp's Cottonwood Canyon powerline from 230 kilovolts to 345 kilovolts, the Lake Powell to Sand Hollow Reservoir water pipeline, and the Wide Hollow Reservoir on BLM land north of the Monument.

The timing and exact specifications for all of these projects are uncertain. The Cottonwood powerline proposal refers to a December 1975 application to increase the voltage in the Cottonwood Canyon powerline from 245-kilovolts to 345-kilovolts (filed by Utah Power and Light, a subsidiary of PacifiCorp). A more specific description of the proposal is that it would raise the cross arms five feet on the existing wood towers, add three insulators to each conductor, bundle the conductors, and add one X-brace to each existing tower for increased support. There has been no subsequent application filed for this proposed upgrade and no determination of whether such a proposal would be consistent with this Plan. As stated in the **Rights-of-Way** section of Chapter 2 of this Plan, subsequent environmental analysis and a determination of conformance with this Plan would be required before any action is taken.

No application has formally been filed for the Lake Powell to Sand Hollow water pipeline. However, the tentative route would follow Highway 89 for most of its length. Per Public Law-105-355, signed by President Clinton on October 31, 1998, a utility corridor was designated along Highway 89 in Kane County, including that portion of Highway 89 within the Monument. The utility corridor extends 240 feet north from the center line of the highway, and 500 feet south from the center line of the highway. The proposed water pipeline would most likely be built within this utility corridor. Cumulative impacts of the surface disturbance associated with this pipeline, combined with other surface disturbing activities (such as livestock grazing and recreational uses), could have impacts on visual quality, vegetation, archaeology, and other resources. Given the lack of a detailed proposal for this pipeline, and the fact that it is unclear if the project would be proposed within the next 15 years, it is difficult to ascertain the exact impacts. Subsequent environmental analysis would be required on any specific water pipeline proposal. A determination as to its conformance with this Plan would also be required.

The proposed Wide Hollow reservoir would be located on BLM land outside of the Monument boundary. At the time that this document went to print, there was no detailed proposal for the project. Subsequent environmental analysis would be required on any specific reservoir proposal to determine the potential impacts, including impacts on Monument resources downstream.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The implementation of actions in accordance with this Plan is not likely to result in significant impacts that may be characterized as irreversible and irretrievable commitments. However, some small-scale disruption to resources may occur, which may in turn prove long-term or permanent. These are most likely to be associated with this Plan's concentration of visitation in the

Frontcountry Zone along major roads (Highways 12 & 89). Provisions for visitor experience (including day-use) such as trails, overlooks and interpretive sites could yield irremediable impacts on resources such as biological soil crusts. Similarly, increased visitor access in the Frontcountry and Passage Zones could increase the risk of spreading noxious weeds and disrupt the habitat of certain species. Impacts would be monitored to determine the extent to which they may prove irreversible and irremediable, and adaptive management as described in Appendix 3 would be employed as appropriate.

ISSUES CONSIDERED BUT NOT ANALYZED IN DETAIL

There are several factors that must be considered in all Environmental Impact Statements because of laws, regulations, and executive orders, but which are not necessarily analyzed in detail. They are discussed below.

IMPACTS ON AREAS OF CRITICAL ENVIRONMENTAL CONCERN

There are no existing Areas of Critical Environmental Concern (ACECs) in the Monument and ACECs are not proposed in this Plan (see the **ACEC** section in Chapter 2 and Appendix 10). Therefore, there would be no impact on the relevance and importance criteria for any ACEC.

IMPACTS ON PRIME AND UNIQUE FARMLANDS

There are no prime or unique farmlands or farmland of Statewide or local importance on public lands in the Monument. None of the actions proposed in this Plan would disturb farmlands. Therefore, impacts on prime and unique farmlands are not analyzed further in this Environmental Impact Statement.

IMPACTS ON FLOODPLAINS

No projects or activities that would result in permanent fills or diversions in, or placement of permanent facilities on special floodplain areas (as designated by the Federal Emergency Management Agency), would occur with implementation of this Plan. Therefore, impacts on floodplains are not analyzed in detail.

IMPACTS ON GEOLOGICAL RESOURCES

Specific impacts on geological resources are not identified. This is because impacts on geology are difficult to separate from impacts to other resources which the geology of the Monument supports. Thus, impacts on geology are discussed elsewhere, either implicitly or explicitly, in the discussions of impacts to other resources such as paleontology and scenic quality.

IMPACTS ON OR FROM HAZARDOUS AND SOLID WASTES

No hazardous, toxic, or unapproved solid waste sites are known to occur on public lands in the Monument. None of the actions, activities, and uses projected to occur with implementation of this Plan would require the handling, storage, or release of large quantities of these wastes. Therefore, impacts on or from hazardous and solid wastes are not analyzed in detail.

IMPACTS ON NATIVE AMERICAN TRUST RIGHTS

Impacts on Native American Trust Rights are not analyzed in detail in this Environmental Impact Statement because no trust rights are associated with lands inside the Monument. As described in the **Consultation with Native American Indians** section of Chapter 3, the BLM would consult with tribes in order to minimize impacts on ancestral sites and traditionally associated resources.

IMPACTS ON ENVIRONMENTAL JUSTICE

The local communities in and around the Monument are typically below the State average per capita annual income of approximately $17,000 and are almost

BEST COPY AVAILABLE

exclusively Caucasian. For example, the percentage of Caucasian people in Garfield county is about 98 percent. The implementation of this Plan would have a greater effect on the well-being of the local low income populations than on the more affluent populations in other areas of the State and Country. However, because the affected local communities are homogenous and would be uniformly affected, there would not be an unequal distribution of risks and benefits in those communities from implementation of this Plan.

Native American Indian populations would not be disproportionately affected by decisions in this Plan. Exceptions to restrictions on uses of plants, collection of natural resources and access to certain locations would be granted for Native American traditional practices.

IMPACTS OF VALID EXISTING RIGHTS ON MONUMENT RESOURCES AND MANAGEMENT

The effects of valid existing rights on public lands are not analyzed in detail in this Environmental Impact Statement for reasons similar to those explained in Chapter 2 of the DEIS for Full Field Mineral Development. Valid existing rights are described in Chapter 2 of this Plan. Refer to the **Cumulative Impacts** section above for a general discussion of impacts of current operations.

Chapter 4

Public Participation and Coordination

BEST COPY AVAILABLE

INTRODUCTION

The Bureau of Land Management (BLM) is committed to providing opportunities for meaningful participation in resource management planning processes. Effective planning processes provide opportunities for the public to become involved early, to comment on draft land use plans, and to ensure that the BLM has met the provisions of the National Environmental Policy Act (NEPA). The BLM has maintained an ongoing public participation process. Examples of these efforts include:

VISIONS KIT

The first document produced as part of the scoping process was a "visions kit," designed to elicit a wide range of ideas regarding Monument management. It described Monument landscapes, laid out a set of guiding principles, and provided a worksheet for recording ideas. The worksheet allowed individuals to list what they valued about the Monument, what purposes the Monument should serve, what services nearby communities should provide, and other concerns. More than 2,000 visions kits were returned during the scoping phase of public involvement. These comments were summarized and provided to the public in Update Letter No. 5.

SCOPING WORKSHOPS

Fifteen scoping workshops were held between August and October 1997 in Utah, Colorado, New Mexico, Arizona, Nevada, California and Washington, D.C. Each workshop began with an introductory overview of the Monument and the planning process, then participants broke into smaller facilitated groups. In these smaller groups, members used the visions kit to record their ideas and concerns. More than 1,100 people attended the workshops. Chapter 5 of the Draft Management Plan/Draft Environmental Impact Statement (DMP/DEIS) listed the locations and attendance at the workshops.

SCIENCE SYMPOSIUM

In November of 1997, the BLM, the Utah State Advisory Council for Science and Technology, and Southern Utah University sponsored *Learning from the Land - a Science Symposium* in Cedar City, Utah. Scientists were invited to share information about the natural and cultural history of the Monument. Over 200 people attended the symposium. The information provided by the scientists was used by the BLM in the development of the Monument Management Plan.

MANAGEMENT STRATEGIES AND SCENARIOS

The BLM kept the public involved in the development of the Management Plan between the scoping workshops and publication of the Draft Management Plan/Draft Environmental Impact Statement (DMP/DEIS) by the development of "management strategies and scenarios." Management scenarios were short descriptions of the general approaches that would guide management actions in each alternative. Each scenario had a different emphasis, which resulted in actions that varied between the alternatives. These scenarios were meant to provide the philosophy and direction for each alternative. The public was invited to comment on draft strategies in Update Letter No. 6. The resulting scenarios were introduced in Update Letter No. 7. They provided the framework for refining the alternatives presented in the DEIS.

DRAFT PLAN COMMENTS

In addition to printed copies, this Plan was available for review through the Monument's website and on CD-ROM in efforts to reduce paper used in printing. Approximately 2,500 printed copies and 700 CD-ROMs were distributed.

More than 6,800 comment letters on the DMP/DEIS were received by March 15, 1999. About 65 percent of the comments were mailed to the planning office. Thirty percent were received by electronic mail, with the remainder coming by fax or delivery at open house sessions. Chapter 5 of this document describes the comment response process.

DRAFT PLAN OPEN HOUSE SESSIONS

Thirteen open house sessions were held between December 1998 and January 1999 in Utah, Colorado, New Mexico, Arizona, California, and Washington, D.C. The dates and locations of the open house sessions were announced in the November 12, 1998 Federal Register (Vol. 63, No. 218, pages 63327-63329), in local media sources for the city or town where the meetings were held, on the Monument homepage, and in Update Letter No. 9.

Each open house session began with an introductory video tape presentation of the Monument planning process and DEIS alternatives. Then participants were encouraged to visit with Planning Team members regarding their questions about the DEIS More than 1,000 people attended the open house sessions.

Open House Session Locations, Dates, and Attendance:

- Kanab, Utah, 12/1/96, 92 attended
- Albuquerque, New Mexico, 12/1/98, 72 attended
- Escalante, Utah, 12/3/98, 69 attended
- Denver, Colorado, 12/3/98, 109 attended
- Salt Lake City, Utah, 12/8/98, 219 attended
- Tropic, Utah, 12/8/98, 83 attended
- San Francisco, California, 12/10/98, 94 attended
- Big Water, Utah, 12/10/98, 52 attended
- Orderville, Utah, 1/5/99, 19 attended
- Panguitch, Utah, 1/5/99, 12 attended
- Flagstaff, Arizona, 1/7/99, 102 attended
- Cedar City, Utah, 1/7/99, 43 attended
- Washington, D.C., 1/12/99, 78 attended

UPDATE LETTERS

From May 1997 through June 1999 ten Planning Update Letters were sent to approximately 4,000 people on the mailing list, distributed to visitors, and posted on our homepage on the World Wide Web. The purpose of the letters was to keep the public informed and involved throughout the planning process. The update letters contained information on how to become involved in the planning process, identified preliminary planning criteria, announced the call for Areas of Critical Environmental Concern and Wild and Scenic River nominations, summarized comments from scoping, identified planning issues, outlined management scenarios, summarized the DEIS open house sessions and comments.

INTERNET HOMEPAGE

The BLM also maintaines a homepege at <www.ut.blm.gov/monument/> which contains Monument news and events, visitor information, education and research opportunities, and planning information. The homepage also provides an electronic mail link to the planning office. The website has averaged 1,100 "hits" per month. Over 30 percent of the responses to the Draft Plan were delivered through the Monument electronic mail address. The entire DEIS was available on the homepage in digital and down-loadable formats.

INFORMATION MEETINGS

The BLM established regular opportunities for interaction with state, local and tribal officials. State, county, and municipal officials have participated in extensive and regular information meetings. Planning Team members have also attended many tribal government meetings, in order to consult with tribal officials regarding the Monument planning process. The Monument Manager has directed staff to be available for requests from organizations to attend informational meetings. The Manager and staff have attended dozens of such meetings throughout the Nation and region to discuss the Monument planning process and to foster continuing public involvement.

INTERGOVERNMENTAL COORDINATION

Since Grand Staircase-Escalante National Monument is the first BLM Monument, the BLM sought the advice of other agencies managing areas of National significance. These sessions provided valuable information on involving the public and other "lessons learned" from their planning efforts.

To more fully include the State of Utah in the planning process, Secretary of the Interior Bruce Babbitt invited Governor Leavitt to nominate members to the Planning Team. The Governor proposed five professionals who became part of the Planning Team. These professionals include a geologist, paleontologist, historian, wildlife biologist, and a community planner. In addition, the State of Utah Automated Geographic Resource Center provided support through a cooperative agreement.

As mentioned above, the BLM consulted with tribal officials throughout the planning process via information letters, telephone calls, meetings, and field trips. The BLM also conducted consultation on BLM projects, Native American Graves Protection and Repatriation Act, and potential interpretive topics and perspectives. This consultation effort will continue into the implementation of this Plan.

FEDERAL REGISTER NOTICES

The following *Federal Register* Notices were published, announcing important aspects of the Plan preparation:

- *Federal Register* (Vol. 62, No. 130, pages 36570-36571) July 8, 1997 — Notice of Intent to Prepare a Management Plan and Environmental Impact Statement
- *Federal Register* (Vol. 62, Nol 141, page 39534) July 23, 1997 — Notice of Intent to Prepare a Management Plan and Environmental Impact Statement: Correction [telephone number correction]
- *Federal Register* (Vol. 62, No. 147, page 41074) July 31, 1997 — Notice of Public Involvement and Scoping Opportunities for the Grand Staircase-Escalante National Monument Management Plan and Associated Environmental Impact Statement
- *Federal Register* (Vol. 63, No. 31, pages 7820-7822) February 17, 1998 — Call for Information on the Grand Staircase-Escalante National Monument Management Plan Regarding Areas of Critical Environmental Concern (ACEC) and Wild & Scenic Rivers (WSR)
- *Federal Register* (Vol. 63, No. 218, pages 63327-63329) November 12, 1998 — BLM Notice of Availability of the Grand Staircase-Escalante National Monument Draft Management Plan and Associated Draft Environmental Impact Statement
- *Federal Register* (Vol. 63, No. 220, pages 63729-63730) November 16, 1998 — EPA Environmental Impact Statement No. 980457 - Notice of Availability of the Grand Staircase-Escalante National Monument Draft Management Plan and Associated Draft Environmental Impact Statement
- *Federal Register* (Vol. 64, No. 31, page 7905) February 17, 1999 — Notice of Extension of Public Comment Period

PLANNING CONSISTENCY

The Federal Land Policy and Management Act (FLPMA), Title II, Section 202, directs the BLM to coordinate planning efforts with Native American Indian tribes, other Federal departments, and agencies of state, and local governments. To accomplish this directive, the BLM is directed to keep apprised of state, local, and tribal land use plans, assure that consideration is given to those state, local and tribal plans that are relevant in the development of land use plans for public lands; and to assist in resolving, to the extent practical, inconsistencies between Federal and non-Federal government plans. The section goes on to state in Subsection(c)(9) that *"Land use plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this Act."* The provisions of this section of FLPMA are echoed in Section 1610.3 of the BLM Resource Management Planning regulations.

On December 3, 1997 the Planning Team Coordinator mailed a letter to all known affected governmental jurisdictions requesting access to their most current official policy and planning guidance. The letter also requested a copy of any formally adopted plan that should be considered during the development of the Monument Management Plan. A follow-up letter dated April 7, 1998 encouraged the same jurisdictions to carefully review the management strategies released in the April 1998 Update Letter No. 6, and to comment on any perceived inconsistencies with their plans.

A six-person group of planning team members reviewed available Federal, State and local plans relating to Monument lands. That group reviewed ten municipal plans, two county plans, two regional plans, 16 Utah State agency plans, and 8 Federal agency plans listed in Chapter 5 of the DEIS. No major inconsistencies were identified between the DEIS alternatives and the plans reviewed.

Six comments to the DEIS included concerns regarding consistency with other land use plans. These comments came from the two counties, three Federal agencies, and the Kane County Water Conservancy District. Table 4.1 identifies the applicable land use plan, lists the issues or conflicts identified, and includes a response to each issue or conflict.

Since the publication of the DMP/DEIS, a few additional plans that apply to Monument management were adopted by various agencies. These documents were reviewed and no inconsistencies were identified, and the remaining jurisdictions have raised no concerns regarding inconsistencies.

The additional plans evaluated since the publication of the DMP/DEIS are:

- Utah Division of Wildlife Resources Strategic Management Plan for Bighorn Sheep (November 12, 1998)
- Utah Division of Wildlife Resources Strategic Management Plan for Cougar (March 17, 1999)
- Utah Division of Wildlife Resources Strategic Management Plan for Wild Turkey (November 12, 1998)
- United States Fish and Wildlife Services Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (January 1999)

Table 4.1
Plan Consistency Review

Name of Plan	**Consistency Issue/Concern**	**Consistency Finding**	**Discussion**
		Federal Land Use Plans	
U.S. Department of Agriculture Dixie National Forest Land and Resource Management Plan (September 1986, amended 1995)	The proposed Monument management zones are inconsistent with the Dixie National Forest's Land and Resource Management Plan allocation decisions of the MA1 (Developed Recreation), MA6A (Livestock Grazing) and MA7A (Wood Production and Utilization) zones adjacent to Caanan Mountain. (Letter 5300)	Consistent	The BLM has not identified any activities on the National Forest that would be constrained due to the proposed zone configurations in the vicinity of Caanan Mountain. The proposed management zones were established by considering dominant terrain, transportation systems, use patterns, sensitive resources, and existing land disturbances. Livestock grazing is allowed in all zones. Commercial timber harvesting is not allowed in any zone. The road network necessary for the Forest Service to access wood production zones is left intact.
U.S. Department of Energy Western Regional Corridor Study (1992)	The Western Regional Corridor Study was formally endorsed by the BLM in 1993. The Study identifies the Sigurd-Glen Canyon transmission line alignment in Cottonwood Canyon as a "strategic corridor," which was not identified in the DMP/DEIS. (Letters 5769, 6369, 6589)	Consistent	The Western Regional Corridor Study was taken into consideration in the development of the Proposed Plan. It is important to note that the study is not a decision document, rather it is a document which the BLM committed to use as a reference when considering land use decisions. Given the purposes outlined in the Proclamation, designating utility corridors in these areas is not considered appropriate. Existing rights-of-way will be respected. Requests for additional rights-of-way will be considered on a case-by-case basis after site specific environmental analysis and a determination of conformance with the Monument Management Plan.
U.S. Department of the Interior Bryce Canyon National Park General Management Plan (1987)	The Yellow Creek and Jim Hollow Roads should be designated as Administrative Use due to unauthorized ATV use in southwestern willow flycatcher habitat. (Letter 6508)	Partially Consistent	The use of the Yellow Creek and Jim Hollow Roads was coordinated with Dixie National Forest, which is planning an ATV route on these roads. The National Forest is the land management agency adjacent to the Monument in this location, and the agency upon which these roads terminate.
U.S. Department of the Interior Capitol Reef National Park Draft General Management Plan (March 1998)	The Capitol Reef General Management Plan classifies the Burr Trail Road as "Dirt - All-Weather Two-Wheel Drive." The classification given to the Burr Trail Road inside the Monument should match the classification given by the National Park Service. (Letter 6508)	Partially Consistent	The Burr Trail Road inside the Monument is subject to a valid RS 2477 right-of-way held by Garfield County. Classification of the road would be governed by the RS 2477 right-of-way. Currently the road is an all-weather, 2-wheel-drive hard-surfaced road.
	A road in the Circle Cliffs area shown as open to ATV use in the Monument loops through the National Park, where ATVs are not allowed. The road should allow only street-legal vehicles which must remain on the road. (Letter 6508)	Consistent	This Plan would close this route leading into Capitol Reef National Park to ATV use.

Table 4.1
Plan Consistency Review

Name of Plan	Consistency Issue/Concern	Consistency Finding	Discussion
U.S. Department of the Interior Glen Canyon National Recreation Area General Management Plan (July 1979)	The proposed Primitive Zone abuts the NRA Recreation and Resource Utilization (R&RU) zone near Big Water to Rock Creek. The R&RU zone allows mineral development, historical uses, and special uses such as filming. This may create use conflicts. (Letter 6508)	Consistent	The Monument boundary near Big Water to Rock Creek typically follows a major cliff line which divides the Monument from the National Recreation Area. Recreation Area R&RU zone uses would not conflict with the Monument Primitive Zone uses due to the major terrain separations involved. In addition, activities such as minimum impact filming, grazing and other uses can still occur in the Primitive Zone. To the extent that valid existing rights exist in that zone, mineral development may also occur.
	The proposed Passage Zone off the Hole-in-the-Rock Road leading to the NRA boundary allows ATVs and "rudimentary facilities" which may conflict with the NRA Natural zone which emphasizes isolation and natural processes. (Letter 6508)	Partially Consistent	This Plan closes these routes leading into Glen Canyon National Recreation Area to ATV use. Rudimentary facilities along these roads could include signs or barriers to better delineate parking areas to trailheads.
	The Smoky Hollow, Smoky Mountain (below Kelly Grade) and Croton Roads are located in erosion prone soils, and should be closed to ATV use. (Letter 6508)	Partially Consistent	The Croton Road would be closed to ATVs in this Plan. The Smoky Hollow and Smoky Mountain Roads would remain open to ATV use within the existing road surface. Use off-road that could contribute to erosion would be prohibited, and maintenance of these roads would be done to prevent or minimize erosion.
State and Local Land Use Plans			
Garfield County, Utah General Plan (March 13, 1995, as amended)	The consistency requirements of FLPMA, NEPA, and their implementing regulations, regarding the County's plan, must be fully complied with by the BLM (Garfield County, Utah General Plan, Page 6-9). (Letters 1301, 6525, 5426, 6206)	Consistent	This Plan and the DMP/DEIS recognize the FLPMA mandate to keep apprised of State, local, and tribal land use plans; assure that consideration is given to those State, local and tribal plans that are relevant in the development of land use plans for public lands; and to assist in resolving, to the extent practical, inconsistencies between Federal and non-Federal government plans. This Plan reflects efforts to resolve inconsistencies within the constraints of Federal law and regulation.
	To develop an adequate transportation plan, the BLM must resolve conflicts concerning RS 2477 roads (Garfield County, Utah General Plan, Page 6-12). (Letters 6525, 6365)	Partially Consistent	Monument managers initiated a series of discussions with Garfield County officials regarding a transportation system acceptable to both the BLM and Garfield County in order to resolve RS 2477 conflicts. Negotiations had not resulted in an agreement at the time this Plan went to press.

Table 4.1
Plan Consistency Review

Name of Plan	**Consistency Issue/Concern**	**Consistency Finding**	**Discussion**
Garfield County, Utah General Plan (March 13, 1995, as amended) cont.	If a final resolution of the RS 2477 roads issue is not possible due to litigation or other factors, the Management Plan must, at a minimum, acknowledge and address how and when the County's vested rights within the Monument will be handled (Garfield County, Utah General Plan, Page 6-12). (Letter 6525)	Partially Consistent	Chapter 2 of this Plan includes a section on **Transportation and Access**. This section states that the Plan designates the route system for the Monument, subject to valid existing rights. It is unknown whether any RS 2477 claims would be asserted and determined to be valid which are inconsistent with the transportation decisions made in the Approved Plan. To the extent inconsistent claims are made, the validity of those claims would have to be determined. If claims are determined to be valid RS 2477 highways, the Approved Plan would respect those as valid existing rights. Otherwise, the transportation system described in the Approved Plan would be the one administered in the Monument.
	The Management Plan must also contain provisions which will allow the County, as the entity most directly responsible and legally liable for road maintenance, law enforcement, and search and rescue activities in a large area of the Monument to carry out these responsibilities in an appropriate manner. This includes recognition of adequate right-of-way widths and the placement of law enforcement and emergency management facilities (Garfield County, Utah General Plan, Page 6-12). (Letter 6525)	Partially Consistent	Chapter 2 of this Plan includes sections on **Cooperation with Communities and other State and Federal Agencies**, **Transportation and Access**, and **Utility Rights-of-Way and Communication Sites**, which address how the BLM will coordinate with county transportation, law enforcement, and emergency management needs. While these sections do not address granting rights-of-way and authorized emergency management facilities, they do address how the Monument will cooperate with communities on law enforcement and emergency issues.
	The Management Plan must provide for range improvements, preservation of current grazing on public lands, maintenance of county water rights, continuation of public land timber harvesting, and consideration and encouragement of mining leases (Garfield County, Utah General Plan Resolutions, pages 6-18 to 6-31). (Letters 6525, 5426, 6206)	Partially Consistent	Chapter 2 of this Plan contains extensive discussions on **Livestock Grazing**, **Water**, and **Forestry Products**. These sections are consistent with the County plan in that they state that grazing would continue to be managed under existing laws and regulations and that forestry product harvesting could continue, by permit, in designated areas, if consistent with overall vegetation management objectives. Water rights are granted by the State of Utah, and the BLM has no authority to change priority dates or affect perfected water rights. The Presidential Proclamation closed the Monument to future mineral entry and leasing, which is at odds with the County plan assertion that mining leases be considered and encouraged. Valid Existing Rights for mining are discussed in Chapter 2.

Table 4.1
Plan Consistency Review

Name of Plan	**Consistency Issue/Concern**	**Consistency Finding**	**Discussion**
Garfield County, Utah General Plan (March 13, 1995, as amended) cont.	Garfield County holds that the establishment of the Monument created a new Federal obligation to assist the County in preserving and saving the County's natural heritage and historic uses of the land as they presently exist in and around the Monument (Garfield County, Utah General Plan, Page 6-11). (Letters 6525, 5426, 6324, 6206)	Inconsistent	The creation of the Monument did not create a new Federal obligation to Garfield County. The Federal obligation is that "the public lands be managed in a manner that will protect the quality of the scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values" (FLPMA); and "protection of the objects identified" (Proclamation). This Plan includes a **Monument Management Direction** (Chapter 2) which includes the intent to work with local, State and Federal partners, scientists, and the public at large to insure protection, facilitate scientific and historic research, respect authorized uses, and allow appropriate visitation.
	The County has taken positions on no net loss of private land; on no increases in Federal acreage in the County; on no net loss of AUMs due to designation of the Monument; on the creation of new Federal obligations to reimburse the County for loss of revenues; on the need for community expansion; on the protection of water rights and the development of additional community water sources; against Federal buffer zones outside designated boundaries; and on many other issues which involve socioeconomic and community impacts (Garfield County, Utah General Plan Resolutions, pages 6-18 to 6-31). (Letters 6525, 5426, 6206)	Partially Consistent	Chapter 2 of this Plan describes contains the following sections: **Non-Federal Land Inholdings**, **Cooperation with Communities**, and **Livestock Grazing**. This Plan's treatment of these issues is inconsistent with County positions in some respects, but this inconsistency is considered necessary to meet the requirements of the Proclamation and FLPMA. This Plan discusses circumstances where private inholdings may be acquired or purchased to further the objectives of the Monument Plan, which could be inconsistent with the County plan. The section on **Livestock Grazing** states that grazing would be managed under existing laws and regulations other than the Proclamation, thus AUMs would not be decreased as a result of Monument designation. Assisting local communities financially is beyond the scope of this Plan. Garfield County has participated in Assistance Agreements with the Department of the Interior (DOI) and remains eligible to negotiate other similar agreements within the constraints of DOI policy. The sections on **Cooperation with Communities** and on **Utility Rights-of-Ways** discuss cooperation and infrastructure issues which may be inconsistent with County positions. Water rights are granted by the State of Utah, and the BLM has no authority (and proposes nothing in this Plan) that could affect perfected water rights. No "buffer zones" are proposed in the Plan.
	County policy is that the lands in the Monument must remain open for multiple use activities including hunting, fishing, hiking, camping, and grazing, as well as for all other grandfathered uses where valid existing rights exist (Garfield County, Utah General Plan, Page 6-12). (Letter 6525)	Consistent	Chapter 2 of this Plan, in **Monument Management Direction**, states that: "The Proclamation directed that the Monument remain open to certain specific uses under existing laws and regulations. These include valid existing rights, hunting, fishing, grazing and pre-existing authorizations." This direction is consistent with County policy.

Table 4.1
Plan Consistency Review

Name of Plan	Consistency Issue/Concern	Consistency Finding	Discussion
Garfield County, Utah General Plan (March 13, 1995, as amended) cont.	Monument staff, both professional and support, should be located as close to the Monument as possible (Garfield County, Utah General Plan, Page 6-16). (Letter 6525)	Consistent	Chapter 2 of this Plan states that "major facilities and the services associated with them would be located outside the Monument in nearby communities." This direction is consistent with county policy.
	The Management Plan must include provisions for assisting local communities with impact mitigation resulting from the designation (Garfield County, Utah General Plan, Page 6-17). (Letters 6525, 6206)	Partially Consistent	Assisting local communities with impact mitigation is beyond the scope of a land use management plan. Garfield County has participated in Assistance Agreements with the Department of the Interior, and remains eligible to negotiate other similar agreements within the constraints of Department of the Interior policy.
	There are existing needs and there will be future needs to make improvements on lands now included in the Monument. It is critical that the Management Plan and regulations recognize the need for communities to develop new sources of water, including those which might lie within the Monument (Garfield County, Utah General Plan, Page 6-13). (Letter 6525)	Consistent	Chapter 2 of this Plan includes sections on **Cooperation with Communities and other State and Federal Agencies**, and **Utility Rights-of-Way and Communication Sites** which address how the BLM will coordinate with county needs. These sections discuss the potential need for infrastructure, and outline areas where they would be considered.
	Tactics to control water or gain water rights by using the Endangered Species Act, instream flow arguments, or other circuitous measures to override existing water rights will be strongly resisted (Garfield County, Utah General Plan, Page 6-13). (Letter 6525)	Consistent	Chapter 2 of this Plan includes a section titled **Appropriative Water Rights under State Law** which includes the statement: "The acquisition of water rights will be carefully coordinated with the State of Utah and local governments." The BLM has no authority to change priority dates or override perfected water rights.
	The Management Plan must recognize and include provisions for dealing with possible future development of the coal, oil, uranium, vanadium, copper, titanium, zirconium, and other minerals which may be found to exist (Garfield County, Utah General Plan, Page 6-16). (Letter 6525)	Partially Consistent	This Plan does include provisions for the holders of valid existing rights to exercise these rights. This Plan cannot be completely consistent with this County policy because the Presidential Proclamation closed the Monument to future mineral entry.
	The Management Plan must consider all values and needs without respect to WSA boundaries. The County is opposed to the use of the designation of the Monument as a basis for unilateral wilderness designation (Garfield County, Utah General Plan, Page 6-15). (Letters 6525, 5426)	Partially Consistent	**Wilderness Study Areas and The 1999 Utah Wilderness Inventory and Section 202 Planning Process** are discussed in Chapter 2. These sections state that "recommendations for Wilderness suitability and additional WSAs are beyond the scope of this Plan." Existing WSA boundaries are recognized and respected in this Plan, however.

223

BEST COPY AVAILABLE

Table 4.1
Plan Consistency Review

Name of Plan	**Consistency Issue/Concern**	**Consistency Finding**	**Discussion**
Garfield County, Utah General Plan (March 13, 1995, as amended) cont.	Limiting vegetation manipulation appears to be in conflict with County policy (Garfield County, Utah General Plan, Page 6-27). (Letter 5426)	Partially Consistent	Chapter 2 includes a section on **Vegetation Restoration Methods**, which states: "A wide variety of vegetation restoration methods may be used to restore and promote a natural range of plant associations in the Monument. The **Vegetation** section also states that non-native plants would not be used to increase overall livestock numbers. Finally, a **Restoration and Revegetation** section describes the guidelines applied to proposed projects. The objective to achieve a natural range of native plant associations means that non-native forage will eventually be replaced with native forage. While the vegetation restoration policy may be inconsistent with County policy in some respects, it is considered necessary to meet the requirements of the Proclamation.
	Closing access significantly impacts historic and traditional relationships between local communities and surrounding landscapes (Garfield County, Utah General Plan, Page 6-11). (Letters 5426, 6206)	Partially Consistent	Monument managers initiated a series of extensive discussions with Garfield County official's regarding a transportation system acceptable to both the BLM and Garfield County. This Plan retains a transportation system which maintains the primary travel routes between communities.
Kane County, Utah General Plan (June 22, 1998, as amended)	We sustain the Kane County General Plan as the governing document for all public and private lands in Kane County (Kane County, Utah General Plan, Page 108). (Letter 6142)	Partially Inconsistent	The governing authority for managing BLM public lands is FLPMA. It states that "the public lands be managed in a manner that will protect the quality of the scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values." Chapter 2 of this Plan includes the intent to work with local, State and Federal partners, scientists, and the public at large to insure protection, facilitate scientific and historic research, respect authorized uses, and allow appropriate visitation.
	The Plan restricts ranching access and should not be implemented without agreement and consent of the affected local governments (Kane County, Utah General Plan, Page 118). (Letter 6142)	Consistent	Chapter 2 of this Plan contains extensive discussions on **Livestock Grazing** and **Transportation and Access**. Monument managers initiated a series of extensive discussions with Kane County officials regarding a transportation system acceptable to both the BLM and Kane County. This Plan retains a transportation system which maintains important ranching access.

Table 4.1
Plan Consistency Review

Name of Plan	Consistency Issue/Concern	Consistency Finding	Discussion
Kane County, Utah General Plan (June 23, 1998, as amended) cont.	Where conflicts exist between local and Federal plans that are not inconsistent with Federal law and regulations, then the Federal plan must be consistent with local plans (Kane County, Utah General Plan, Page 101). (Letters 1301, 6142, 6206, 6324)	Partially Consistent	The Proposed Plan and Draft Plan/DEIS recognize the FLPMA mandate to keep apprised of State, local, and tribal land use plans; assure that consideration is given to those State, local and tribal plans that are germane in the development of land use plans for public lands; and to assist in resolving, to the extent practical, inconsistencies between Federal and non-Federal government plans. This Plan reflects efforts to resolve inconsistencies within the constraints of Federal law and regulation.
	Limiting the development of water resources appears to be in conflict with county policies (Kane County, Utah General Plan, Page 120). (Letters, 6142, 6206)	Partially Consistent	Chapter 2 of this Plan includes sections on **Cooperation with Communities and other State and Federal Agencies** and **Utility Rights-of-Way and Communication Sites**, which address how the BLM will coordinate with county needs. These sections address appropriate areas within the Monument where development could be considered. The Proclamation clearly mandates that Monument resources be protected and directs the BLM to evaluate the need for water to protect such resources. Limiting development of water resources is considered essential to this requirement.
	The DEIS analysis appears to be in conflict with County policy and the intent and purpose of Federal laws requiring protection of an area's history and culture (Kane County, Utah General Plan, Page 101). (Letters 6142, 6206)	Consistent	Chapter 2 of this Plan includes the intent to work with local, State and Federal partners, scientists, and the public at large to insure protection, facilitate scientific and historic research, respect authorized uses, and allow appropriate visitation. The Plan discusses the protection of historic and cultural resources pursuant to the Proclamation.
	Closing access significantly impacts historic and traditional relationships between local communities and surrounding landscapes (Kane County, Utah General Plan, Page 129). (Letters 6142, 6206)	Partially Consistent	Chapter 2 of this Plan contains extensive discussions on **Livestock Grazing** and **Transportation and Access**. Monument managers had extensive discussions with Kane County officials regarding a transportation system acceptable to both the BLM and Kane County. The transportation system described in this Plan maintains important access between local communities and surrounding landscapes.
	Limiting or restricting new or existing public utility rights-of-way appears to be in conflict with County policy (Kane County, Utah General Plan, Page 129). (Letters 6142, 6206)	Partially Consistent	Existing rights-of-way will be respected. Requests for additional rights-of-way will be considered on a case-by-case basis after site specific environmental analysis. This Plan outlines areas where new utility rights-of-way would be considered, consistent with the protection of resources under the Proclamation.

225

Table 4.1
Plan Consistency Review

Name of Plan	Consistency Issue/Concern	Consistency Finding	Discussion
Kane County Water Conservancy District Master Plan (July 1997)	The DEIS did not utilize the Kane County Water Conservancy District Master Plan of July 1997. (Letters 6262, 4890)	Consistent	The Kane County Water Conservancy District Master Plan of July 1997 was carefully reviewed, and is listed on Page 5.3 of the Draft Plan/EIS as one of the numerous plans considered. The review of Chapter 7 (Identified Needs) and Chapter 8 (Description of Alternatives) of the Master Plan did not result in the identification of any potential projects which would be hindered by this Plan.

COLLABORATIVE MANAGEMENT

The BLM recognizes that social, economic, and environmental issues cross land ownership lines. Extensive cooperation during the planning stage and beyond is also needed to address issues of mutual interest. In keeping with the concepts brought forward in the **Implementation and Adaptive Management** section in Appendix 3, the BLM would also engage in a collaborative management process that would seek to:

- For innovative partnerships with local and State governments, Native American Indian tribes, qualified organizations, and appropriate Federal agencies to manage lands or programs for mutual benefit consistent with the goals and objectives of this Management Plan;
- Work with communities, counties, State and other Federal agencies, and interested organizations in seeking nontraditional sources of funding including challenge cost-share programs, grants, in-kind contributions, and allowable fee systems to support specific projects needed to achieve plan objectives;
- Place greater emphasis, where appropriate, on contracting with private sector businesses, nonprofit organizations, academic institutions, or State and local agencies to accomplish essential studies, monitoring, or project development; and
- Increase the use of citizen and organizational volunteers to provide greater monitoring of resource conditions and to complete on-the-ground developments for resource protection, effective land management, and human use and enjoyment.
- As discussed in Chapter 2, an Advisory Committee would be chartered under the Federal Advisory Committee Act to advise BLM Monument management on science issues and the achievement of management of plan objectives. The group would be comprised of scientists, elected officials, a State or tribal government representative, the environmental community, an educator, and Monument permit holders.

Where it is found to be mutually advantageous, the BLM would enter into cooperative agreements or memorandums of understanding with Federal, State, local, tribal, and private entities to manage lands or programs consistent with the goals and policies of this Management Plan. Such agreements could provide for the sharing of human or material resources, the management of specific tracts of lands for specific purposes, or the adjustment of management responsibilities on prescribed lands. This would be done in order to eliminate redundancy and reduce costs.

Non-profit organizations, citizens and user groups that have adequate resources and expertise could enter into cooperative agreements to assist in the management of public lands in the Monument. Assistance

BEST COPY AVAILABLE

could include, but would not be limited to, resource monitoring, site cleanups, and the construction of authorized projects.

EIS DISTRIBUTION LIST

FEDERAL AGENCIES

- U.S. Government Printing Office
- Library of Congress
- Advisory Council on Historic Preservation
- Agricultural Stabilization and Conservation Service
- Forest Service
  - Dixie National Forest
  - Regional Office, Region 4
- Natural Resource Conservation Service
- Department of the Interior
  - Office of Environmental Policy and Compliance
  - Bureau of Land Management
  - Bureau of Reclamation
  - Fish and Wildlife Service
  - Minerals Management Service
  - National Park Service
    - Bryce Canyon National Park
    - Capitol Reef National Park
    - Glen Canyon National Recreation Area
    - Grand Canyon National Park
    - Zion National Park
  - U.S. Geological Survey
- Army Corps of Engineers
- Department of Energy
- U.S. Environmental Protection Agency
- Office of the Solicitor
- Water and Power Resources Service

STATE GOVERNMENT AGENCIES

- Arizona State Historic Preservation Office
- Community and Economic Development Strategy Committee
- Utah Automated Geographic Reference Center (ARGC)
- Utah Department of Agriculture
- Utah Department of Community and Economic Development
- Utah Department of Environmental Quality
- Utah Department of Natural Resources
  - Utah Division of Parks and Recreation
  - Utah Division of Air Quality
  - Utah Division of Forestry and Fire Control
  - Utah Division of Water Rights
  - Utah Division of Water Resources
  - Utah Division of Water Quality
  - Utah Division of Wildlife Resources
- Utah Geological Survey
- Utah Governor's Office of Planning and Budget
- Utah State Clearing House
- Utah State Historic Preservation Office
- Utah State Institutional and Trust Lands Administration
- Utah Travel Council

INSTITUTIONS OF HIGHER EDUCATION

- Brigham Young University
- Dixie College
- Northern Arizona University
- Southern Utah University
- University of Utah
- Utah State University Extension Service
- Utah State University

TRIBAL GOVERNMENTS AND GROUPS

- Hopi Tribe
- Navajo Nation
  - Historic Preservation Office
  - Bodaway & Gap Chapters Navajo Nation
  - Cameron Chapter Navajo Nation
  - Kaibeto Chapter Navajo Nation
  - Lechee Chapter Navajo Nation
  - Oljato Chapter Navajo Nation
- Paiute Tribes of Utah
- Kaibab Paiute
- San Juan Paiute
- Zuni Tribe
- Zuni Tribe Cultural Preservation Office

LOCAL GOVERNMENTS AND COMMISSIONS

- Alton Town Council
- Antimony Town Council
- Big Water Town Council
- Boulder Town Council
- Cannonville Town Council
- Escalante Town Council
- Glendale Town Council
- Hatch Town Council
- Henrieville Town Council
- Kanab City Council
- Orderville Town Council
- Panguitch City Council
- Tropic Town Council
- Beaver County, UT Board of Commissioners

Coconino County, AZ Board of Supervisors
Garfield County, UT Board of Commissioners
Grand County, UT Board of Commissioners
Iron County, UT Board of Commissioners
Kane County, UT Board of Commissioners
Mojave County, AZ Board of Supervisors
Wayne County, UT Board of Commissioners
Washington County, UT Board of Commissioners
Color Country Resource Conservation and Development Council
Five County Association of Governments
Kane County Water Conservancy District
Washington County Water Conservation District
Wide Hollow Water Conservancy District

NON-GOVERNMENT ORGANIZATIONS

The Access Fund
American Association for the Advancement of Science
American Canoe Association
American Fisheries Society, Bonneville Chapter
American Hiking Society
American Horse Protection Association
American Lands Access Association, Inc.
American Mining Association
American Motorcyclist Association
American Outdoors
American Petroleum Institute
American Recreation Coalition
American Rivers
American Whitewater Affiliation
Audubon Society
Backcountry Horsemen of Utah
Black Diamond Equipment, Ltd.
Blue Ribbon Coalition
California Association of 4WD Clubs, Inc.
Council on Utah Resources
Defenders of Outdoor Heritage
Defenders of Wildlife
Dixie Geological Society
Ecological Society of America
Environmental Defense Fund
The Environmental Law Institute
Escalante Cattlemen's Association
Friends of the Earth
Forever Resorts
Garkane Power Association
Grand Canyon Trust
Good Earth
Helicopter Association International
The International Association of Fish and Wildlife Agencies
International Mountain Biking Association
Izaak Walton League
Kampgrounds of America
Kanab Cattlemen's Association
Kanab/Escalante Livestock Permittees
Mineralogical Society of America
Mountain Recreation
National Association of RV Parks and Campgrounds
National Association of Counties
National Council of Public Land Users
National Farm Bureau
National Geographic Society
National Mining Association
National Outdoor Leadership School
National Parks and Conservation Association
National Parks and Recreation Association
National Stock Grower's Association
National Trust for Historic Preservation
National Wildlife Federation
Natural Resources Defense Council
Natural Areas Association
Nature Conservancy
Oregon Environmental Council
Outdoor Recreation Coalition of America
Outward Bound
Pacific Legal Foundation
Paleontological Society
Professional Paddlesports Association
Public Lands Council
Public Lands Foundation
Raptor Research Foundation
Recreation Vehicle Industry Association
Rocky Mountain Elk Foundation
Rocky Mountain Center on Environment
Save Our Canyons Committee
Sierra Club
The Soaring Society of America, Inc.
Scenic America
Society for American Archaeology
Society for Range Management
Society of Vertebrate Paleontology
Southern Utah Wilderness Alliance
Sporting Goods Manufacturers Association
Trout Unlimited
Trout Unlimited, Utah Chapter
The Trust for Public Lands
Utah Archaeological Society
Utah Audubon Society
Utah Cattlemen's Association
Utah Farm Bureau
Utah Geological Association
Utah Mining Association

Utah Nature Study Society
Utah Power & Light
Utah Rivers Council
Utah Sportsmen Association
Utah Wildlife & Outdoor Recreation Federation
Utah Wool Growers' Association
Weber County Trails
Western History Association
Wilderness Society of America
Wildlife Society
Women's Conservation Council of Utah

UTAH CONGRESSIONAL DELEGATION

Representative James Hansen
Representative Merrill Cook
Representative Christopher Cannon
Senator Orrin Hatch
Senator Robert Bennett

INTERESTED/AFFECTED INDIVIDUALS

Permittees
Private Land Inholders

LIST OF PREPARERS

Jerry Meredith - Monument Manager
Education: B.A., Communications
Experience: 28 years

Kate Cannon - Associate Monument Manager
Education: B.S., Natural Resource/Wildlife Management
Experience: 20 years

Chris Killingsworth - Planning Coordinator (Feb 99-to present)
Education: B.S., Agriculture
M.S., Planning
Experience: 6 years

Pete Wilkins - Planning Coordinator (Oct 96-Feb 99)
Education: B.S., Watershed
Experience: 20 years

Elizabeth Ballard - Outdoor Recreation Planner
Education: B.S., Forestry & Resource Management
Experience: 24 years
Contribution: Wilderness, VRM, Backcountry Recreation

Robert Blackett - Geologist
Education: B.S., Geology
M.S., Geological Engineering
Experience: 21 years
Contribution: Geology, Minerals

Andrew Dubrasky - Geographic Information Specialist
Education: B.A., English
Experience: 11 years
Contribution: GIS data development and analysis

Marietta Eaton - Assistant Monument Manager for Cultural and Earth Sciences
Education: B.A., Anthropology
M.A., Anthropology (pending)
Experience: 19 years
Contribution: Cultural Resources

Alden Hamblin - Paleontologist
Education: B.S., Geology
M.S., Paleontology, Museology
Experience: 24 years
Contribution: Paleontology

Joel Haynes - Information Management System Specialist
Education: A.S., Electronics Technology
B.S., Computer Science
Experience: 2 years
Contribution: Information Management

Marisa Hyatt - Geographic Information Specialist
Education: B.A., Psychology
Experience: 3 years
Contribution: GIS data development and analysis

229

F. Clair Jensen - Wildlife Specialist
Education: B.S., Zoology & Botany
M.S., Political Science (pending)
Experience: 32 years
Contribution: Wildlife

Connie Lathrop - Information Receptionist
Experience: 10 years
Contribution: Comment Response
Database Management

Jeane Leatherman - Editorial Assistant
Education: B.A., Environmental Studies
Teaching Credential
Experience: 3 years
Contribution: Document Editing and Layout

Tom Leatherman - Botanist
Education: B.A., Biology-Botany emphasis
Experience: 10 years
Contribution: Botany, Update Letter preparation

Cara Mollenkopf - Administrative Assistant
Experience: 8 years
Contribution: Office Administration

Bob Nagel - Geographic Information System Analyst
Education: M.L.A., Landscape Architecture & Environmental Planning
Experience: 13 years
Contribution: GIS data development and analysis (ARGC)

Kezia Nielsen - Writer/Editor
Education: B.S., Botany
Experience: 15 years
Contribution: Document Oversight

Dennis Pope - Assistant Monument Manager for Biological Sciences
Education: B.S., Business Management, Range Science
M.S., Natural Resource Management
Experience: 15 years
Contribution: Biological Resources; Rangeland and Riparian Ecology

Lorraine Pope - Realty Specialist
Education: B.S., Wildlife & Fisheries Biology
Experience: 12 years
Contribution: Realty/Lands

Jerry Sempek - GIS Database Manager
Education: M.L.A., Landscape Architecture & Environmental Planning
Experience: 12 years
Contribution: GIS Data/Analysis

Barb Sharrow - Assistant Monument Manager for Visitor Services
Education: B.A., Sociology
Experience: 19 years
Contribution: Visitor Services

Kenneth Sizemore - Community and Economic Development Planner
Education: B.A., Political Science
Experience: 21 years
Contribution: Planning Consistency, Socioeconomic Analysis

Kathleen Truman - Historian
Education: B.S., Anthropology
Ph.D., Social Anthropology
Experience: 21 years
Contribution: History, Comment Response Management

Chapter 5

Public Comments on the DMP/DEIS and Responses

PUBLIC COMMENTS

This chapter addresses the public comments received on the Draft Management Plan/Draft Environmental Impact Statement (DMP/DEIS) and the Bureau of Land Management's (BLM) response to those comments. All written comments were reviewed and considered. Comments that presented new data or addressed the adequacy of the document, the alternatives, or the analysis are responded to in this Proposed Plan pursuant to the BLM's National Environmental Policy Act (NEPA) Handbook (H-1790-1). There were also many comments which, although not required to be addressed, are being clarified in this chapter. Comments expressing personal opinions or that had no specific relevance to the adequacy or accuracy of the Draft Management Plan were considered but not responded to directly. Similarly, comments received after the close of the comment period on March 15, 1999 were considered, but are not addressed in this document.

Over 6,800 letters commenting on the DMP/DEIS were received. Each comment letter was assigned an identification number and specific comments from each letter were organized into appropriate categories. Nine broad categories or areas of concern were developed, and specific comments raised under each category were given a corresponding code (i.e., ACC-1). The broad categories and associated codes are listed below in alphabetical order.

Access and Transportation
    ACC-1 to ACC-27
Biological Resources
    BIO-1 to BIO-16
General
    GEN-1 to GEN-51
Grazing (livestock grazing)
    GRAZ-1 to GRAZ-8
Lands (including rights-of-way)
    LAND-1 to LAND-8
Recreation
    REC-1 to REC-16
Water Resources
    WAT-1 to WAT-7
Wilderness Study Areas
    WSA-1 to WSA-3
Wild and Scenic Rivers
    WSR-1 to WSR-8

All of the identification numbers, names (or organizations), and the corresponding comment response numbers were then entered into a computerized database. The following list displays the names of the organizations and/or names of those individuals who commented on the DMP/DEIS and the corresponding comment codes (shown below the names). Some letters do not have a comment code because the comments did not require a response.

ORGANIZATIONS WHO COMMENTED

3R Minerals
GEN-7
4 Wheel Drive Enthusiasts & Concerned Citizens
4 Wheelers, ATV Enthusiasts & Concerned Ci.
ACC-2
Azte Inc.
Advisory Board for National Parks
GRAZ-1, REC-1
American Endurance Ride Conference
REC-8
American Horse Council
REC-1, 8
American Lands Access Association, Inc.
American Lands Alliance
GRAZ-5
American Motorcyclist Association
ACC-2, 11
American Rivers
BIO-12, WAT-4, WSR-1, 6
Animal Protection Institute
ACC-1, 10, BIO-1, GEN-1, 5, GRAZ-3, REC-2, 10,
WSA-3
Arctic Connections
GEN-7, 8, 22, WAT-4, WSA-3
The Association of Guides Within the Monument
REC-1, 3, 4
Back Country Horsemen of Oregon
REC-8
Back Country Horsemen of Utah
ACC-7, BIO-1, REC-1
Back Country Horsemen of Utah, Mt. Ridge Unit
REC-8
Back Country Horsemen of America
REC-1
Back Country Horsemen of Nevada
REC-8
Back Country Horsemen of Utah
ACC-7, BIO-1, REC-1
Back Country Horsemen of Utah, Washington Chapter
ACC-7, REC-1
BLM Lands Foundation
ACC-1, 5, 9, 10, REC-12, 16, 18
Blue Ribbon Coalition
Bond Energy
ACC-1, BIO-4, GEN-1, GRAZ-5, WSR-1
Bear Company
GEN-2, REC-1
Boulder Mt. Ranch
Boulder Outdoor Survival School
ACC-5, 8, GEN-2, REC-1, 3, 18

99

The Boulder Regional Group
ACC-1; BIO-4, 9; GEN-1, 5; GRAZ-3; LAND-1; REC-1, 2; WSR-6
Boy Scouts of America/Panguitch District
REC-1
Boy Scouts of America/Paria River District
REC-1
Bullhead 4 Wheelers, Inc.
California Native Plant Society
GEN-1; REC-2; WSA-2
Californians for Utah Wilderness
ACC-1, 10; GEN-11, 26; GRAZ-3; REC-2; WSA-3; WSR-1
The California State Horsemens's Association
REC-8
Campbell Scientific, Inc
GRAZ-3; REC-2
Canyon 4X4 Club
ACC-2
Canyon Country 4X4 Club
Castlerock 4 Wheelers
ACC-7, 10
Center for Environmental Connections
GRAZ-1; REC-2
Chequamegon Audubon Society
GRAZ-3; REC-2
Citrus Horse Trails Alliance
REC-8
Cline Library
GRAZ-1
The Cobb Land Trust
Colorado Association of 4 Wheel Dr. Clubs, Inc.
ACC-2, 6, 9, 14, 15; REC-1; WSA-3
Colton 4-Wheelers Jeep Club & Concerned Citizens
ACC-10
Conoco, Inc.
GEN-7, 8, 22, 36
Creeper Jeepers Gang
ACC-2, 10
Deer Creek Ranch Property Owners
ACC-18; LAND-1
Deer Springs Ranch
ACC-12
Deer Springs Ranch Owners Association
ACC-12
Department of Agriculture, State of Utah
GEN-1; GRAZ-5
The Desert Protective Council, Inc
ACC-1; REC-2; WSA-2
Desert Survivors
GEN-1; GRAZ-1; REC-2; WSR-1
Dinaland Snowmobile Club
Ecology Center of Southern California
GRAZ-3; REC-2
El Dorado Equestrian Trails Foundation
REC-8
Endurance Riders of Alberta
REC-8
Escalante Canyon Outfitters
ACC-1, 5, 8; REC-1, 3, 8
The Escalante Center
ACC-5, 6, 10, 24; GEN-13, 30; GRAZ-3, 5; REC-1, 4, 8, 10, 19
Escalante Wilderness Institute
ACC-1,10; BIO-4; GEN-5, 12; GRAZ-3, 6; LAND-1; REC-8; WSR-1
Falcon Realty and Development Corp
Five County Association of Governments
ACC-10, 20; BIO-4, 5; GEN-1, 2, 9, 11, 12, 13, 15, 16, 36, 38, 39, 41, 42, 43, 44, 45; LAND-1, 4, 5; REC-1, 8, 10, 17, 18; WAT-1, 2, 5, 6, WSA-2; WSR-3
Flood Canyon Ranch
GEN-1; GRAZ-5
Forest Guardians
GEN-1; GRAZ-3; REC-2
Forests Forever
GRAZ-3
Foundation for North American Wild Sheep
GEN-1
Friends of the River
WSR-1
Garfield County
ACC-3, 6, 9, 10, 12, 13, 15, 16, 20, 21, 22, 23, 24, 25, 28; BIO-5; GEN-1, 7, 9, 13, 15, 22, 33, 36, 37, 38, 39, 42, 43, 44, 45, 46, 48, 52, 53; GRAZ-7; LAND-1, 3, 5; REC-1, 4, 10, 12, 19, 25; WAT-4, 8; WSA-2, 3; WSR-1, 3
Garfield County Engineer
ACC-9, 10, 12, 13, 14, 16, 21, 24, 27, 28; BIO-5; GEN-1, 5, 6, 7, 30, 32, 36, 48; REC-1, 7; WSR-3
Garfield County Planning Commission and Town
ACC-20; BIO-4; GEN-15, 36, 38; LAND-1; REC-17
Garfield County Travel Council
ACC-2; GEN-9
Garfield-Kane Grazing Advisory Committee
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Garkane Power Association
ACC-5, 12; GEN-13, 40; LAND-1, 3, 5
Georgia Bounty Runners 4WD Club
Georgia State, Lieutenant Governor
Grand Canyon Trust
ACC-1; BIO-4, 5; GEN-1, 12, 24, 30; GRAZ-5; LAND-1; REC-8; WAT-2; WSR-3
Grand Canyon Wildlands Council
ACC-1, 10; BIO-4; GEN-1, 5, 11, 13, 24, 49; GRAZ-3, 7, WAT-1; WSA-3; WSR-1
Grand Staircase-Escalante Outfitters & Guides
ACC-5; REC-1, 3
Great Old Broads for Wilderness
BIO-4, 8; GEN-21, 24, 26; GRAZ-3, 5, 8; WAT-2, 5; WSR-7
Great Western Trail Assoc., Arizona Council
Hereford Natural Resource Conservation District
High Country Citizens' Alliance
ACC-1; GEN-1, 5
Hondo Rivers and Trails
REC-1
The Honeymoon Trail Company
REC-1
Humane Society of Utah
BIO-2; GEN-1, 17; REC-9
Independent Montana Miners
International Mountain Bicycling Association
REC-12, 19
Iron County Commission
GEN-13, 15
The Izaak Walton League
GRAZ-1; REC-2
JHA Environmental Consultants, LLC
ACC-3; GEN-11
Kane County Sheriff's Office
Kane County
ACC-5, 7, 11, 20; BIO-4, 9; GEN-1, 2, 9, 13, 25, 30, 36, 42, 45; GRAZ-3, 7; LAND-1, 3, 5, 6; REC-1, 8, 10, 16, 19; WAT-5; WSR-3
Kane County Advisory Council
ACC-20; GEN-13; GRAZ-3, 5
Kane County Soil Conservation District
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Kane County Water Conservancy District
GEN-41; WAT-7; WSR-3, 10
Kaniksu Bioregional Council
GRAZ-3; REC-2; WSA-3
Kerncrest Audubon Society
GRAZ-3
Kettle Range Conservation Group
ACC-1; GEN-1; GRAZ-1; REC-2; WSA-2
Kiava Plateau Archeology
GEN-15
Klamath Alliance for Resource & Environment
Lake Tahoe Hi-Lo's
Land & Water Fund of the Rockies
BIO-4, 8; GEN-21, 24, 26; GRAZ-3, 5, 8; WAT-2, 5; WSR-7
Land Rover Owners Association of North America
ACC-10
Las Vegas Distance Riders Club, Inc.

Leland Haws Cattle Co.
ACC-5; GEN-1, 13; GRAZ-5; REC-1

Lone Peak 4-Wheelers ATV Enthusiasts
ACC-2, 10

Long Island Off-Road Club

Marinera Ranch
REC-8

Minnesotans for Responsible Recreation
ACC-1; GRAZ-5; REC-2; WSA-2

Motorcycle Trail Riding Association
ACC-10

National Park Service/Utah State Office
ACC-8, 10, 19; BIO-4, 8; GEN-1, 2, 5, 11, 12, 13, 36; LAND-1; REC-1, 2, 7, 8, 10; WAT-2

National Parks & Conservation Association
ACC-1, 19; BIO-1; GEN-1, 5, 24, 47; GRAZ-5; REC-2, 30; WAT-4

National Wildlife Federation
BIO-4, 8; GEN-21, 24, 26; GRAZ-3, 5, 8; WAT-2, 5; WSR-7

Natural Resources Defense Council
BIO-4, 8; GEN-21, 24, 26; GRAZ-3, 5, 8; WAT-2, 5; WSR-7

The Nature Conservancy
BIO-7, 8

Nevada All State Trail Riders, Inc
REC-8

Nevada United Four Wheelers Association
ACC-2, 10

New Mexico 4-Wheelers
ACC-2, 9, 14, 15, 16; WSA-3

New Mexico Touring Society
GRAZ-3

New Mexico Wilderness Alliance
ACC-5; GRAZ-5; REC-2; WSA-2

New York Botanical Garden
GEN-22; GRAZ-5

Oregon Association of Conservation Districts

Organization of Concerned Citizens
ACC-13; GEN-1; GRAZ-3

Outlaw Trail Endurance Arabians & Historical Ride
REC-1, 8

PacificCorp
ACC-5; GEN-8; LAND-3, 6, 7; WSR-10

Pass Patrol 4X4 Travel Club

People for the USA

Project Bird Watch
GRAZ-3; REC-2; WSA-3

Public Lands Foundation

Rancho Racemosa
REC-8

Raptor Research Foundation ,Inc.
BIO-2, 6

Red Rock Adventures, Inc.
REC-1, 10

Regional Parks Association
ACC-1; GEN-1; REC-2

Republicans For Environmental Protection
GEN-1; GRAZ-3; LAND-1

Riverside Ruff Riders (Cal. 4 Wheel Assoc.)

Rock Hoppers & Utah 4-Wheel Clubs

Round River Conservation Studies
ACC-1, 3, 5, 6, 10, 13, 24; BIO-1, 3, 4, 6, 8, 12, 14, 16, 17, 18; GEN-1, 7, 13, 21, 24, 31, 33, 43, 49; GRAZ-3, 5; LAND-1, 3; REC-8, 12, 19; WAT-2, 4, 5

S10 4X4 Club

San Diego Off-Road Coalition
ACC-9, 14, 15, 16; WSA-3

San Juan County Commission

Sandy 4-Wheelers ATV Enthusiasts

Scenic America
GRAZ-3; REC-2

Scenic Rim Trail Rides, Inc.
REC-1

Security Energy Company
GEN-7, 8, 22

Sequoia Forest Alliance
GRAZ-3

Sequoia View Vineyards & Farm
GEN-3

Sierra Club
ACC-1, 18; GEN-1; GRAZ-5; LAND-1; REC-2; WAT-4; WSA-3

Sierra Club, Grand Canyon Chapter
WSA-3

Sierra Club, Rio Grande Chapter
ACC-5; GRAZ-3; REC-2; WSA -3

Sierra Club, Utah Chapter
ACC-5, 8, 19, 24; GEN-32, 40; GRAZ-3, 5; REC-2; WSA-2, 3

Sierra Student Coalition
GEN-1; GRAZ-3; LAND-1; REC-2; WSR-1

Skookumchuck Mud Daubers 4-Wheel Drive Club
ACC-2

Small Pond Magazine

SOG Investors, LLC
GEN-7, 8, 22

South Central Utah Telephone
LAND-1

South Eastern Utah Assoc of Local Governments

Southern Utah Wilderness Alliance
ACC-5, 8, 10, 13, 14, 18, 24; BIO-4, 6, 8; GEN-1, 5, 11, 12, 21, 22, 24, 26, 39; GRAZ-3, 5, 8; LAND-1; REC-1, 2, 18; WAT-1, 2, 4, 5; WSA-2, 3; WSR-1, 6, 7

Southwest Four Wheel Drive Association
ACC-9, 14, 15, 16; WSA-3

Sport Utility Action Network
ACC-9, 14, 15, 16; WSA-3

Sportsmen for Fish and Wildlife
GEN-1

St. Anselm Exploration Company
GEN-7, 8, 22

Tennessee Citizens for Wilderness Planning
GRAZ-3; REC-2

Timberline Trailriders, Inc
ACC-2, 10

Town of Big Water, Utah
ACC-9

Town of Boulder, Utah
ACC-5; GEN-9, 42; LAND-5; REC-1, 2, 8

Town of Circleville

Town of Henrieville, Utah
ACC-2; BIO-5; LAND-5

Town of Jerome, Arizona

Town of Kanab City
ACC-10, 15, 20, 24, 25; GEN-1, 2, 13, 15, 42, 45; GRAZ-3; LAND-3, 5, 6; REC-1, 10; WAT-7, 8

Town of Page, Arizona

Town of Springdale, Utah
GEN-12, 22; WSR-6

Town of Toquerville, Utah
ACC-2; BIO-4; REC-8

Town of Virgin, Utah
ACC-2; BIO-9; REC-8

Town of Washington City, Utah
BIO-4; GEN-43; REC-8

Travelers Aid Society

Tule River Conservancy
Graz-3

U.S. Department of Agriculture, Forest Service
ACC-8, 18, 21; BIO-3, 4, 9; GEN-11, 33, 36

U.S. Department of Energy
GEN-36; LAND-1, 3

U.S. Environmental Protection Agency
ACC-3, 4, 10; GEN-13, 22, 24; GRAZ-3; WSA-3

U.S. Fish and Wildlife Service
BIO-1, 4, 8, 9; GEN-1; GRAZ-5; WAT-2

U.S. Wildlife Services
GEN-1

Uintah ATV Association

Unitarian Universalists for Ethical Treatment of Animals
GRAZ-3; REC-2

United Four Wheel Drive Associations
ACC-9, 14, 15, 16; WSA-3

Utah 4 Wheel Drive Association
ACC-10

Utah Association of Conservation Districts
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Utah Associated Municipal Power Systems
LAND-1
Utah Community & Economic Development Team
ACC-2, 5, 6, 9, 10, 12, 13, 15, 20, 24, 25, 28; BIO-4, 9; GEN-11, 13, 15, 30, 36, 38, 39, 42, 45; GRAZ-3; LAND-1, 3, 5, 6; REC-1, 4, 7, 8, 10, 12, 17, 19; WSA-2; WSR-3
Utah Congressional Delegation (Chris Cannon, James Hansen, Robert Bennett, Orrin Hatch)
ACC-5, 10; BIO-4; GEN-42; REC-1, 8
Utah Environmental Congress
GEN-1
Utah Farm Bureau Federation
ACC-5; GEN-1, 7, 10; WAT-1; WSR-3
Utah Federal Gem & Mineral Society
ACC-10
Utah Shared Access Alliance
ACC-17; GEN-16, 37; REC-14; WSR-3, 4
Utah Snowmobile Association
Utah State Department of Transportation
ACC-25
Utah State House of Representatives - Thomas Hatch
ACC-2; BIO-4; GEN-1; LAND-1; REC-1; WAT-2
Utah State Governor's Office
ACC-4, 5, 6, 8, 10, 20; BIO-1, 4, 6, 13; GEN-1, 2, 10, 13, 15, 24, 30, 42; GRAZ-7; LAND-5, 8; REC-1; WAT-2, 4, 8; WSR-3, 6, 10
Utah Wild Project
ACC-8, 18; WSA-3
Virginia Horse Council Trails Committee
REC-8
Western Center for Envir. Decision-Making
REC-1
Western Center for Environmental Info.
The Western Counties' Resources Policy Institute
ACC-10; GEN-30, 43, 50; WSA-2
Western Horseman Magazine
REC-1
Western Utility Group
LAND-1, 3
Wilderness Medicine Institute
The Wilderness Society
ACC-1, 3, 5, 8, 9, 10, 14, 15, 18, 24; BIO-8, 12; GEN-5, 9, 11, 12, 13, 21, 22, 23, 24, 31, 32, 40, 51; GRAZ-1, 3, 5, 8; LAND-1; REC-12, 19; WAT-2, 4; WSA-1, 2, 3; WSR-1, 6
Wildlife Damage Review
ACC-17; GEN-1; GRAZ-1; LAND-2
Willow Creek Ecology, Inc.
ACC-3; BIO-4; GRAZ-1

INDIVIDUALS WHO COMMENTED

Abbott, Vance
Abel, Arthur
GRAZ-3
Abelafia, Andrew
Abrams, Alan
GEN-1
Abrams, Marti
REC-8
Achenia, Ray
Ackerman, Jim
Ackerman, John
GEN-2, 3; REC-2
Ackerman, S. David
Ackley, James and Ruth
Acton, Laurie
GEN-1
Adair, Neil
Adams, Ad
ACC-2
Adams, Byron
WSA-2
Adams, Cameron
Adams, Charles
ACC-13; GEN-1; GRAZ-3
Adcms, Charles
ACC-13; GEN-1; GRAZ-3
Adams, Doug
GEN-1; GRAZ-3; LAND-1; WSR-1
Adams, George
Adams, Kurt
Adams, M.
Adams, Mary Jane
GRAZ-3; REC-2
Adams, Michael
ACC-2
Adams, Richard
Adams, Stan
Adams, Todd
Adams, Vance
Adams, Woody
Adamson, Keith and Christine
Adderley, Charles
Addy, Chris
GEN-1; GRAZ-1
Adelmann, Russ
Adey, Nils
ACC-1
Aengst, Peter
ACC-1; GEN-1, 5
Aeus, Kent
Agnello, Bob
ACC-2
Ahls, Mark
Ahrmann, Shelly
Aiken, Rusty and Family
Ala, Kent
Albert, Diane
BIO-1; GEN-5; GRAZ-3; REC-2, WSA-2, 3
Alcock, John
GRAZ-3; REC-2
Alder, Steve
ACC-1
Alderson, Jay
ACC-10
Aldous, Steve
GRAZ-3; REC-2
Alexander, Andrew
ACC-1; GRAZ-5; REC-2
Alexander, Lauren
ACC-1; GRAZ-5; REC-2; WSA-3
Alexander, Sue
Alfred, Gregory
BIO-1; GRAZ-3; REC-2, 10
Alfred, Martin
GEN-1; REC-2
Alger, Rex
Alkire, Matt
Allan, Harry
Alldredge, Craig
Alldredge, Melanie
Alldredge, Nathan
Alleman, Frank
GEN-1, 13; GRAZ-5; WSR-3
Alleman, Kaye
GEN-1, 13; GRAZ-5; WSR-3
Alleman, William
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Allen, Duayne
Allen, Edward
GEN-1, 22; WSA-3
Allen, Frank
ACC-2
Allen, Fred
Allen, Greg
Allen, Janet
ACC-1, 5, 10; GRAZ-3; REC-2, WSA-2
Allen, Jennifer
Allen, Katy
Allen, Michael
ACC-10; REC-2
Allen, Ray
ACC-1; GRAZ-1, 3, 5
Allen, Sue
ACC-2
Allen, Von
Allerson Jennifer
ACC-1; GEN-1; GRAZ-3; LAND-1; REC-1; WSR-1
Alley, James Jr.
REC-8
Allin, Dave
ACC-6; GEN-2

Allison, Jan
ACC-1; BIO-4; GEN-1, 5, 30; GRAZ-5, 6; LAND-1
Allison, P.
ACC-13; GEN-1; GRAZ-3
Allred, Clayton
Allred, Danial
Allred, Dick
Allred, Doyle
Allred, Eric
Allred, Gary
Allred, Kip
Allred, William
Almond, Donna
REC-8
Alongi, Bob
ACC-10; WAT-4; WSA-3
Alper, Gregory
Alpert, Catherin
ACC-1; GRAZ-5; REC-2; WSA-3
Alt, Stuart
ACC-10
Alt, Doug
Altman, Allen and Karin
GRAZ-1; REC-2
Alvarez, F.
Alvarez, Felicia
Alvarez, Jose
ACC-1; GEN-1, 2; REC-1, 10; WSR-1
Alvey, Brent
ACC-20; BIO-5; GEN-11; GRAZ-3, 5; REC-1
Alvey, Sam
Alworth, Brian
Amacher, Peter
Amato, Nicole
ACC-1; GRAZ-5; REC-2
Amaya, Yukiko
Ambler, Anne
ACC-5; GEN-5; WSA-2
Ambrose, Mike
ACC-10; LAND-1; REC-2
Ambrose, James Jr.
GEN-4
Amel, Dean
REC-2; WSA-3
Ames, Carl

Amodt, Gina
BIO-4; REC-8
Amster, Adolph
GRAZ-3; REC-2
Anastassiades, Tassos
GEN-1; REC-2
Ander, Mike
ACC-5; GEN-5; WSA-2
Andersen, Dave
Andersen, Lila
Andersen, Quinn
Andersen, V.
Anderson, Alan
Anderson, Amy
Anderson, Blaine
Anderson, Boyd
Anderson, Bruce
Anderson, Chris
ACC-1
Anderson, Clifford
GRAZ-1; REC-2
Anderson, Cody
Anderson, Cookie
ACC-1; GRAZ-3; REC-2; WAT-4
Anderson, Darrell and Barbara
GRAZ-3; REC-2
Anderson, Daryl
ACC-1; GRAZ-5; LAND-1; REC-2; WSR-1
Anderson, Garn
Anderson, Gary
Anderson, Glen
Anderson, Gloria
Anderson, Gregory
Anderson, Jeff
Anderson, Joyce and David
REC-8
Anderson, Julie
Anderson, Kathy
ACC-1; GEN-1; REC-2
Anderson, Keith
Anderson, Kenny
ACC-2; GEN-13, 15; GRAZ-5
Anderson, Kent Jr.
Anderson, Kent Sr.
Anderson, Larry and Paula

Anderson, Lincoln and Sheila
REC-2
Anderson, Margery
Anderson, Maurice
ACC-10
Anderson, Monte
Anderson, O. Robert
Anderson, Randy
GRAZ-1; REC-2
Anderson, Reed
GEN-1
Anderson, Richard
GRAZ-3; REC-2
Anderson, Russ
GRAZ-3; REC-2
Anderson, Russell
Anderson, Ruth
Anderson, William
Andrew, Robert
Andrews, Aleda
Andrews, Bob
Andrews, Carol
REC-8
Andrews, Chis
GRAZ-5; WSA-3
Andrews, John
Andrews, Michael
GRAZ-3; REC-2
Andrews, Ryan
Andrulis, Catherine
GEN-1; REC-2
Andrus, Eric
Aney, Janaice
REC-2
Angell, Elissa
BIO-1; GEN-1
Angell, Fabio
ACC-10; GRAZ-3, 5; REC-2; WSA-3
Angell, Kent
Angement, Tom and Virginia
Aniello, Pete
Anthony-Cahill, Spencer
ACC-1, 5; REC-1
Antiel, Robert
GRAZ-3; REC-2
Apostola, Nicole
ACC-1; GRAZ-5; REC-2; WSA-3

Aptael, Lee
GEN-1
Arbogast, Jim
Arbuckle, Alan
Arbuckle, Cameron
Archibald, Jason
GEN-5; REC-1; WSA-2
Archibald, Keith and Judy
ACC-1; GRAZ-1, 3, 5
Archtabel, Douglas
[illegible], Denice
ACC-10
Argast, Gene and Karen
Armstrong, John
ACC-1; GRAZ-3; WSR-1
Aronow, Kurt
GEN-1; GRAZ-3; REC-2
Arrington, Aubrey
Ashcroft, Michael
GRAZ-3; REC-2
Ashton, Melvin
Ashworth, Gary
Asmussen, Rodney
ACC-13; GEN-1; GRAZ-3
Aspuru, Cristina
GRAZ-5; REC-2
Aston, D.
Athavale, Anjali, Neera and Vinayak
ACC-10; GRAZ-3, 5; REC-2; WSA-3
Atherton, Robert
REC-8
Atkinson, Aaron
REC-2
Atkinson,Tony
Atwood, Maurice
Atwood, Shirley
Auclair, Charles
Augest, Kennie
Augn, Michael
Ausburn, Don
Austgen, Paul
ACC-2
Austin, Kelly
Avery, George
GRAZ-3; REC-2
Avila, Janet
Avila, Yadi

Awalt, Charles
GEN-1; REC-2
Ayers, Mark
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Babbitms, Ken
Bachman, Stefan
ACC-1; GRAZ-5; REC-2; WSA-3
Bachmann, M and M Thomas
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Bacon, Kenneth
ACC-13; GEN-1; GRAZ-3
Baden, Rita
Badgett, Bob
BIO-1; GEN-5; GRAZ-5; REC-2, 10
Baer, Adam
GRAZ-3; REC-2
Baer, Cathy
ACC-1; GRAZ-1, 3, 5
Bagley, Charles Jr.
REC-2
Bailey, Greg
Bailey, John and Jennifer
Bailey, Mickey
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Bailey, Tim
Bailey, Tracy
REC-8
Baines, Darwin
Baird, Kellee
Baird, Robert
Bajorevitch, Tori
B[illegible]ai, Anita
Baker, Bruce
GRAZ-1; REC-2; WSA-3
Baker, Dan
GRAZ-3; REC-2
Baker, Gordon
Baker, Michael
GEN-1, 5; REC-1
Baker, William
ACC-1; BIO-5; GEN-1
Balboa, Daniel
Balding, Tom
Baldwin, Martha
REC-1
Baldwin, Roger
Baldwin, Terry
Balentine, John
Bales, Arthur
GRAZ-3; REC-2
Ball, Nancy
ACC-1; GEN-1; WAT-4; WSA-2
Ballantine, A.
GEN-1
Ballantyne, Robert
Banks, Jay
Banks, Kolleen
Banks, Leane
Banks, Lyle
Banner, Meredith
ACC-1; GEN-1
Bannon, Barbara
ACC-4; REC-2
Banz, Samuel and Jenifer
Barber, Blair
Bardett, Matthew
Barger, Steven
GEN-5; REC-1
Barkakati, Ivy
Barkdull, Carenlee
Barker, Carol
REC-8
Barker, Steve
Barkume, Tom
ACC-8
Barlow, Al
ACC-2; WSR-1
Barlow, Danny
Barlow, Laurie
ACC-1, 13; GEN-1; GRAZ-3, 5;
REC-2; WSA-2
Barnettler, Bill and Patricia
ACC-1; GEN-1, 5; GRAZ-1; REC-2,
WSA-3
Barnes, Keith
GRAZ-3
Barnett, Aaron
Barnett, Brian
GEN-1, 5
Barnett, Ron
Barney, Jim
Barney, Robert
Barnum, Charolette
ACC-2; GEN-13
Barr, Gracia
GRAZ-5; REC-2
Barrell, Jeff
ACC-1; LAND-1
Barres, Michael
Barrett, Clotilde
ACC-1, 3
Barrett, Duane
REC-8
Barrett, Richard
Barrett, Victoria
Barringer, Debra
ACC-10; GRAZ-3; LAND-1; WSA-3
Barrus, E . Sherman
Barstad, Ben
GEN-5; REC-1
Bartelt, Claire
ACC-1; GEN-1, 5, GRAZ-5; REC-2
Bartelt, Thomas
ACC-1; GEN-1. 5, GRAZ-3; REC-1, 2
Barthel, John
GRAZ-5; REC-2
Bartholomae, Charlene and Lee
REC-1, 8
Barton, Berdell
BIO-5
Barton, Jeremy
Barton, Lori
REC-1
Barton, Neal
Barton, Richard
Barton, Scott
BIO-5
Bash, James
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Baska, Jai
ACC-13; GEN-1; GRAZ-3
Bassewitz, Ph.D Joe
WSA-2
Batchelor, Emma
ACC-1; BIO-1; GRAZ-3; REC-2
Bateman, Vesta
GEN-1; REC-1; REC-2
Bates, Barbara
ACC-10
Bates, Bryan
ACC-1; GEN-1; GRAZ-3; REC-2;
WSA-2
Bates Sammy
Batey, Kate and Harry
GEN-1; GRAZ-1; REC-2; WSR-1
Battlalom, Gary
Battle, Cullen
GEN-1; GEN-22
Bauer, Christopher
Baufmann, Irene
Bauhdadi, Sarah
Baum, Mark
ACC-1; GRAZ-5; REC-2, WSA-3
Bauman, Dave and Sue
Beach, Ben
Beal, Scott
Beales, Jean
ACC-2
Beales, Landon
Bealle, Wallace
GRAZ-3
Bean, Darcy
REC-8
Beandon, Kathy
Beard, Chad
Bearman, Robert
Beath, Mary
ACC-1; GEN-1, 5, 24; REC-2, 8
Beatty, Patrick
GEN-1, 5
Beauchaine, Steve and Jayne
Beck, Dudley
WSR-6, 8
Beck, Earl
Beck, Jay
Beck, Terry
Becker, Alan
REC-2
Becker, Andrew
ACC-13; GEN-1; GRAZ-3
Becker, Bobbie
LAND-1; REC-2
Becker, Donald
Becket, David

Beckett, Tom
GRAZ-1; REC-2
Becking, Rudolf
GEN-24, 33; REC-14
Beckstead, Rex
Beckstead, Richard
ACC-10; LAND-1
Beckstrand, Robert
Beckstrom, Chris
Beckstrom, Sharon
Bedoian, Vic
Bedsworth, F.T.
Bee, Edward
Beecher, Kurt
REC-1
Beers, Randy
Beganie, Lancila
GRAZ-1; REC-2
Behan Jeff
GRAZ-3; REC-12
Behe, Michael
Behunin, Marilyn
Beleu, Steve
GRAZ-3; REC-2, WSA-3
Belka, Lynn
Bell, David
Bell, David
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Bell, George
GRAZ-1
Bell, Joleen
GRAZ-1; REC-2
Bell, Kim and Tawnee
Bell, Norton and Ann
Bell, Roni
REC-8
Bell, Walter
Belles, Mark
ACC-1; GEN-1, 11, 12; WSA-2;
WSR-1
Belliston, Tex
Belliston, Brent
Belnap, Jane
BIO-6, 7; REC-13
Belsky, Joy
ACC-1; GRAZ-1, 3, 5
Belsly, Elizabeth
GRAZ-3; REC-2
Beltz, Robert
Bement, Richard
Beman, Buddy
Bench, Dan
WSA-2
Bender, Andy
REC-8
Benedetto, Tony
Benedict, Jennifer
ACC-1; GRAZ-5; REC-2; WSA-3
Benke, Janet
REC-8
Bennett, Forrest
GRAZ-3; REC-2
Bennett, James
ACC-6
Bennett,Wayne
Bennett, William
Benninghoff, Bruce
ACC-19; GEN-1, 15; WAT-5
Bennion, Lee and Joseph
ACC-1, 10; LAND-1; REC-2; WSA-2,
WSR-1
Bens, J.
ACC-10
Benson, Pamela
Benson, Ralph
Bentley, Berdell and Mary
ACC-10
Bentley, Ray
Benton, Clayton
ACC-13; GEN-1; GRAZ-3
Berchell, Dixie
Berenger, Bonnie
ACC-1; GEN-1, 5
Berg, Lynnae
REC-1, 8
Bergaman, Bob
ACC-1; LAND-1; WAT-5
Berge, Britta
ACC-1; GRAZ-1, 3, 5
Berger, Bruce
Bergeron, Joe
ACC-1; GEN-1; WAT-4; WSA-2
Berggren, Elizabeth
GRAZ-3; REC-2
Bergin, Terry
Berkey, Elizabeth
ACC-1; GRAZ-5; REC-2, WSA-3
Berkowitz, Henry
ACC-13; GEN-1; GRAZ-3
Berlier, Todd
Berling, David
Berman, Michael
GEN-7; GRAZ-1
Berman, Patricia
ACC-1; GEN-1, 5
Bermond-Hamlet, Aude
ACC-1
Bernardo, Delores
REC-1, 8; WSA-1
Bernardo, Sharol
ACC-2; GEN-9, 13, 16
Bernbaum, Bruce
GRAZ-1; REC-2
Berner, Lynn
GRAZ-1; REC-2
Berner, Murray
WSR-1
Bernet, Alex
GEN-1
Bernstein, Bud
ACC-1; LAND-1; WAT-4
Bernuzin, Robert
GEN-1
Berry, David
ACC-4, 10; GEN-7; GRAZ-1
Berry, Kate
ACC-1; BIO-1; LAND-1; REC-2
Bertin, Pamela
REC-1, 8
Berto, Connie
REC-8
Besser, Brian
Best, David
Best, Sat Samar Singh
GEN-5; REC-12
Beswick, Anya
REC-1, 2
Beutler, Henry
Bewsger, Georgiana
Bezzant, Russ
Bianchi, Peri
Bible, Susan
REC-4
Bickel, Harlow
Bickford, Chris
Bier, Chellsey
Bigelow, Boyd
Bigelow, Paul
Bigler, Robert
Bigos, Martin
ACC-1; GEN-1; GRAZ-1; LAND-1
Bilanes, Eugene
ACC-1; GRAZ-1
Bill, Gary
ACC-1, 4; REC-2
Billings, Deborah
BIO-1; GEN-5; GRAZ-3; REC-2,
WSA-2
Bingham, Ken
Bingham, Tad
Binkley, Elizabeth
ACC-13; GEN-1; GRAZ-3
Binyon, Michael and Jean
ACC-1; GRAZ-5; REC-2
Birch, Darin
Birch, Jack
GEN-13, 15; GRAZ-5
Bird, Marsha
Bird, Steve
Bird, Dominique
Birkner, David
ACC-1, 12
Bisbing, Hope and Wes
ACC-1; GRAZ 1, 3, 5
Biscoe, Jack
ACC-1, 10; GRAZ-3; REC-2
Bischoff, Bruce
GRAZ-3, 5; REC-2
Bishop, Cory
Bishop, Steven
Bitter, Merrill
ACC-1, 10; GRAZ-3; REC-2
Bixby, Tai
GEN-1, 5
Bjornstad, Ginger
ACC-10

BLANK PAGE

Black, Devon
Black, Joseph
Black, Keith
Black, Larry
Black, May
Blackburn, Kathy
Blackburn, Patsy
ACC-2; BIO-1; GEN-1, 13; GRAZ-5; WSR-3
Blackburn, Scott
ACC-12; GEN-13
Blackburn, Terry
ACC-2; GEN-13, 15; GRAZ-5
Blackman, Harlow
Blackam, Tina
Blackledge, Stacy
Blain, Richard
GRAZ-3, 5; REC-2
Blair, Robert
ACC-2
Blake, Bill
ACC-1; GRAZ-5; REC-2; WSA-3
Blake, John
ACC-2, 7
Blake, Larry
Blake, Linda
Bland, Nancy
GRAZ-1; REC-2; WSA-3
Bland, Nancy
Blar, Gaylen
Blattenberger, Gail
GRAZ-5; REC-2
Blayyard, Clark
Blevins, Darwin
Block, Roxana
Blodgett, Candice
ACC-13; GEN-1; GRAZ-3
Blohm, Cal
Blommer, George
ACC-14; BIO-1, 2, 4, 8, 13; GEN-1, 12; WAT-6; WSR-3
Bloom, Stuart
ACC-13; GEN-1; GRAZ-3
Blouch, Steve
ACC-1, 5; GEN-5
Bloyer, Jerusha

Blue, Jenny
GRAZ-3; REC-2; WSA-3
Bluhm, Jeff
Blumenthal, David
GRAZ-3; REC-2
Blumenthal, Tom and Betty
ACC-13; GEN-1; GRAZ-3
Boardman, Carolyn
Boardman, Glennis
BIO-5; GEN-13; REC-1
Boeck, Jim
GRAZ-1; REC-2
Bogert, Douglas
ACC-9, 14, 15, 16; WSA-3
Bogert, Susan and Jeff
Boger, Nikki
Bogold, Becky
REC-2
Bogert, Fred
Bohannan, Bill
REC-8
Bohman, Verle and Renee
Boland, Mike
ACC-2
Bolander, Bruce
ACC-2
Bolane, Christopher
GRAZ-1; WSA-2
Bolar, Marlin
GRAZ-3; REC-2
Bolinder, John
Bolinder, Ron
Bollinger, Caralyn
ACC-1; GRAZ-5; REC-2; WSA-3
Bolsover, David
GRAZ-3; REC-2
Bolton, Matthew
Bondar, Eugene and Elsa
BIO-1; GRAZ-5; REC-2, 10
Bondar, Greg and Elisa
BIO-1; GRAZ-5; REC-2, 10
Bonham, Nicole
Bonn, John
Bonnell, Ann
ACC-1
Bonnicksen, Jon
GRAZ-3; REC-2

Bonwasch, Doris
Boone, Lari
ACC-9, 14, 15, 16; WSA-3
Boone, Tim
ACC-9, 14, 15, 16; WSA-3
Booth, Brian
ACC-10; GEN-1; WSA-2
Booth, David
ACC-8, 10
Boren, Bill
Boren, Ryan
Borg, John
Borne, Michelle
Borris, James
ACC-2
Borune, Allen
Boss, David
Bosworth, Ken
Bott, J.
Bottino, Paul
Bourne, Doylene
Bova, V. Arthur
Bove, Clifford
ACC-1; GEN-1, 2, 11; GRAZ-3; LAND-1; REC-2; WSA-1, 2; WSR-1
Bowen, Nick
Bowers, Ross
Bowie, Michael
Bowman, Jane
ACC-1; GEN-5
Bowman, Sylvia
GRAZ-3; WSA-3
Boyce, Joe
Boyd, Elizabeth
ACC-10; WSA-2
Boyd, Wayne
Boyd, Michael, M.D.
GEN-1; GRAZ-1
Boyer, Rick
Boyle, Joseph
ACC-1; GEN-1; GRAZ-1; LAND-1; WSR-1
Bozeday, John
Bradfield, Rod
ACC-1; GEN-1, 5; WSA-2
Bradford, Richard
Bradley, Douglas

Bradley, Richard
Bradshaw, John
Bradshaw, Michael
Bradshaw, Michael
ACC-1; GRAZ-5; LAND-1; REC-2; WSR-1
Brady, Irene
ACC-1; GEN-1, 5; GRAZ-1, REC-2
Brady, Susan
ACC-2
Bragg, Laurie
GEN-5; REC-2; WSA-2
Braithwaite, Alan
Bramall, John
Bramlett, Russell
GRAZ-3; REC-2
Brand, Rick
REC-8
Brandlen, Julie
BIO-1; GEN-5; GRAZ-3; REC-2; WSA-3
Brandon, Leslie
ACC-1; GRAZ-5; REC-2; WSA-3
Branton, Gerrald
ACC-10; REC-2; WAT-4; WSA-2
Brauner, Kalman
ACC-1, 10; GEN-1; GRAZ-3; REC-2; WSA-2; WSR-1
Bray, Gene
ACC-1; GRAZ-1, 3, 5
Breddan, Joe
ACC-1; GEN-5; GRAZ-3; REC-1; WSA-3; WSR-6
Bredeson, Craig
ACC-13; GEN-1; GRAZ-3
Breggs, Karen
GRAZ-3; REC-2; WSA-3
Brehm, Susan
REC-8
Breinholt, Vickie
Brelish, Elizabeth
ACC-1; GRAZ-5; REC-2; WSA-3
Bremer, Roger
ACC-13; GEN-1; GRAZ-3
Brendle, Daniel
ACC-1; GEN-1; WAT-4; WSA-2
Brendle, Stefanie

BEST COPY AVAILABLE

239

Brendler, Candace
Brett, Richard and Lola
GEN-1; GRAZ-3; LAND-1; REC-2,
WSR-1
Brewster, Michael
ACC-1; BIO-1; GEN-1, 5; GRAZ-3,
REC-2, 10
Brickey, Mike
ACC-1; GRAZ-5; REC-2; WSA-3
Brickson, B
Bridges, Bev
Bridges, Charles
REC-8
Bridges, Jennifer
REC-8
Bridwell, Doug
ACC-1; GRAZ-5; LAND-1; REC-2,
WSR-1
Bridwell, Doug
ACC-1; GEN-23; GRAZ-5, LAND-1,
REC-2, WSR-1
Brie, Shari
ACC-2; GEN-13, 15; GRAZ-5
Brienholt, Wally
Briggs, Charles
ACC-13; GEN-1; GRAZ-3
Briggs, Karen
GEN-1
Briggs, Neal
Bright, Ted
GEN-1, WSA-2, WSR-1
Brinda, John
ACC-5
Brindle, Jayne
ACC-1; REC-2
Brink, Paul
GRAZ-3; REC-2
Brinkerhoff, Chad
ACC-2; GEN-13, 15; GRAZ-5
Brinkerhoff, Ferrell
ACC-17, 18; BIO-5; GRAZ-5; REC-1
Brinkerhoff, Gay and Derik
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Brinkerhoff, Jeff
Brinkerhoff, John
Brinkerhoff, Shirley
Brinkerhoff, William
Bristol, Douglas
Britt, David
ACC-5; GEN-12
Broadbent, Steven
Broadhead, Kathy
Broder, Melissa
ACC-1; GRAZ-5; REC-2; WSA-3
Brody, J
Brookman, Gerald
GRAZ-3; REC-2
Broomhead, Al
Brose, Dale
Brose, Dan
Brother, Liz
Brower, Ralph
Brown, Allan
ACC-2; GEN-13, 15; GRAZ-5
Brown, Barbara
ACC-1; GEN-5; GRAZ-5
Brown, Bill
Brown, Blair
GEN-22; GRAZ-3, 5; LAND-1;
REC-2; WSA-3
Brown, Bruce
ACC-1; GRAZ-5; REC-2; WSA-3
Brown, Bryan
REC-2
Brown, Carl
GEN-1, 5
Brown, Clint
Brown, Cory
Brown, Dave
Brown, David
Brown, Drew
GRAZ-5; REC-2; WSA-2
Brown, Earl
Brown, Gay
ACC-2; GEN-13, 15; GRAZ-5
Brown, H. Kirk
GEN-7, 8, 22
Brown, James
Brown, James and Lau
ACC-2; GEN-1, 13; GRAZ-5
Brown, Jerry
Brown, Jim
Brown, Josh
Brown, Kevin
Brown, Larry
Brown, Laurene
ACC-20; BIO-5; GEN-13; GRAZ-3, 5,
REC-1
Brown, Mark
ACC-13; GEN-1; GRAZ-3
Brown, Maud
GEN-13
Brown, N. Kelly
Brown, Randall and Cheryl
ACC-8
Brown, Richard
Brown, Rick
REC-2, WSA-2
Brown, Sara
Brown, Steve
ACC-13; GEN-1; GRAZ-3
Brown, Terry
ACC-1; GEN-1; LAND-1, WAT-4
Brown, Worth
ACC-20; BIO-5; GEN-13; GRAZ-3, 5,
REC-1
Brown, Mark M.D
ACC-1; GEN-1; GRAZ-3; LAND-1,
REC-2; WSA-2,
WSR-1
Browne, Thomas
GRAZ-3; REC-2, WSA-3
Browning, Barbara
Bruke, Richard
ACC-1; GRAZ-5; REC-2, WSA-3
Brunetti, David
ACC-13; GEN-1; GRAZ-3
Brunvand, Amy
ACC-1, WSA-2, 3
Brush, Sara
Brustman, Thomas
ACC-13; GEN-1; GRAZ-3
Bryan, Wayne
Bryce, Gretchen
GRAZ-1; REC-2
Bryer, Elizabeth
BIO-1, 2; REC-2
Bryner, Gary
Buchanan, Bill
Bucher, John
ACC-1
Buckley, Lauren
ACC-13; GEN-1; GRAZ-3
Buckley, Sue
ACC-1, 10; GEN-5; GRAZ-3; LAND-1
[illegible]
GRAZ-5, REC-2
Buff, [illegible]
[illegible]
Buhler, Dean
[illegible]
GEN-1; REC-1
[illegible], Tamie
ACC-2
Bulkley, Terry
Bullens, Darryl
GEN-5; GRAZ-3; REC-2, WSA-2
Bullock, Kay
Bullock, Lyn
Bullock, Scott
Bunch, Van
ACC-13; GEN-1; GRAZ-3
Bundy, Clint
Bunker, Brad and Ann
Bunker, LeGrande
Bunting, Bruce
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Bunting, DeRalph and Lynn
ACC-10; GEN-36; WSR-3
Bunting, Deanne
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Bunting, Gavin
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Bunting, JoLynn
Bunting, Leah
ACC-5; GEN-1, GEN-13; GRAZ-5,
REC-1
Bunting, Vivian
Bury, Bobby
Burak, Greg
ACC-13; GEN-1; GRAZ-3
Burch, David
ACC-1; GRAZ-3; REC-2, WSA-2
Burchard, Ann
ACC-1; GRAZ-5; REC-2, WSA-3
Burdick, Adam
ACC-1, 13; GEN-1; GRAZ-3, 5,
LAND-1, REC-2, WSA-3 WSR-1

Burgener, Donald
Burgess, Jeff
GRAZ-3
Burgon, Janell
Burk, James
Burk, Peter and Joyce
REC-1, 2
Burke, Marilynn
GRAZ-3; REC-2
Burkert, Jay
ACC-2
Burkett, Teresa
ACC-1; GEN-1; REC-2
Burkhart, Brooke
ACC-1; WSR-1, 6
Burkhart, Christine
ACC-13; GEN-1; GRAZ-3
Burleson, Randy
ACC-2
Burnett, Bill
GRAZ-3, 5
Burnett, Carolyn
GRAZ-3; REC-2
Burnette, Johnny
Burnham, Bruce
REC-8
Burns, Rick
GEN-1; GRAZ-3; REC-2; WSA-2;
WSR-1
Burns, Terry
GEN-1; GRAZ-1; LAND-1; WSA-3
Burns, Tim
Burns, Victor
ACC-13; GEN-1; GRAZ-3
Burr, Bruce
Burr, Phillip
ACC-12; GEN-13
Burrage, Becky
Burraston, Kurt
Burrell, Buzz
Burrows, Bryan
Burson, Anita
REC-1, 8
Burton, Jan
REC-2; WSR-1
Burton, Jennett

Bush, Ken and Pat
REC-1, 8
Bush, Michael
GEN-12, 22; WSR-6
Bushell, Robert
Busk, Richard
Busk, Rodney
Buskirk, Bill and Lynn
ACC-1; GEN-5
Buss, William
ACC-1; GEN-1; GRAZ-1; REC-2;
WSR-1
Bussio, Jamie
REC-1
Buster, Katey
GRAZ-3; REC-2
Buttar, Shahid
ACC-13; GEN-1; GRAZ-3
Button, Rhonda
Button, Van
Button, Wayne
Buxton, Michelle
ACC-1; GEN-1
Bybee, Kyle
REC-1
Bybee, Terrill
Byrne, Dave
GEN-5; REC-1
Byrne, Tom
GEN-1, 5
C. de Baca, Teresa
ACC-10
Ca, Randy
Cafaro, Philip
ACC-1, 10; GEN-1; WSA-3
Cshill, Gerald
GRAZ-3; REC-2
Cahoon, Alicia
Cahoon, Beth
Cahoon, Fred
Cahoon, Richard
Calderwood, Alan
Calhoun, Julie
ACC-1, 10; GEN-5
Call, Susan
ACC-1; WAT-4; WSA-3

Callagan, Charles
ACC-1; WSA-3; WSR-1
Callister, Scott
Cameron, Joe
Cameron, Scott
ACC-5; GEN-5; WSA-2
Campbell, Charles
REC-1; REC-4
Campbell, David
Campbell, Janet
Campbell, Julie
REC-8
Campbell, Neal
ACC-2
Campbell, Sharon
REC-8
Canoday, Edward
GEN-1; REC-2
Cane, James
ACC-1; GEN-1
Canepa, Chester and Jackie
Canfield, Kerry
ACC-13; GEN-1; GRAZ-3
Cannalte Doug
GRAZ-3; REC-2
Canning, Jerry
ACC-5, 10
Canning, Stephen
GRAZ-3; REC-2; WSA-2
Canning, Toni
ACC-1; GRAZ-3; REC-2
Cannon-Geary, Irene
GEN-1; GRAZ-3; REC-2; WSA-2
Canoday, Edward
GEN-1; REC-2
Capozzelli, J.
REC-2
Cappel ,Walt
REC-8
Caprio, Anthony
Car, Shane
Cardella, Richard
GEN-1; REC-2
Caripps, Kaye
Carleton, Lee
ACC-1; GRAZ-1; LAND-1
Carlson, Carrol and Bud

Carlson, Lorrie
ACC-13; GEN-1; GRAZ-3
Carlton, Floyd
Carlton, JoAnn and Chris
REC-1, 8
Carman, Debbie
REC-8
Carney, Eugene and Marilyn
GEN-5; REC-2; WSA-2
Carpenter, Doyle
Carr, David
GRAZ-3; REC-2
Carriere, Nancy
ACC-1; GRAZ-5; REC-2; WSA-3
Carrigan, Allen
Carrigan, Boyd
Carrigan, Darin
Carnociron, Joan
Carroll, Mark
Carroll, R.
Carson, William
REC-2
Carter, Ammon
Carter, Brandon
Carter, J.
Carter, Jeffrey
BIO-1, 8; GEN-5; GRAZ-3, 5; REC-2
Carter, Larry and Dot
ACC-1; BIO-4; GRAZ-5; WAT-2
Carter, Lesley
GRAZ-5; REC-2
Carter, Michael
Carter, Scott
Caruso, Ver Jean
ACC-10
Cashhuff ,Gilbert
Caspar, Cat
ACC-1; GRAZ-5; REC-2; WSA-3
Casper Dan
Casper, Marvin
Casperson, Rich
GRAZ-3; REC-2
Cass, Brian
ACC-1; GEN-2; GEN-2, 5
Cass, Robyn
GEN-5

241

BEST COPY AVAILABLE

Cassady, Alison
GRAZ-5; REC-2
Castro, Rachel
Cates, Jeremy
Cates, JoEllen
Catton, Steve
WSA-2
Cavid, Harvy
Cazier, Andraya
Ceccardi, Toni
GEN-1; WSA-2
Cecil, Jon
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Cedar, Robert
GRAZ-5; REC-2
Cederburg, Mr. and Mrs. C. W.
REC-1, 4
Celona, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Cernac, Joe
GRAZ-3; REC-2; WSA-2
Cerv[illegible]io, Darleen
REC-4
Chabot, Steve
ACC-1; GRAZ-5; REC-2; WSA-3
Chailos, George
ACC-13; GEN-1; GRAZ-3, 5; REC-2
Chak, Arreem
GEN-1
Chamberlain, Bruce
Chamberlain, Cloyd
ACC-2; GEN-1; GRAZ-3
Chamberlain, Eric and Lucene
Chamberlain, Karen
REC-2
Chamberlain, Ron
Chamberlin, Susan
ACC-10; GEN-1; WSA-2
Chambers, John
GEN-1, 5; REC-2
Chambers, Reuece
Chambers, Sam
ACC-1; GRAZ-5; REC-2; WSA-3
Chambless, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Chamblin, Larry
GEN-1; LAND-1; WSR-1
Chandler, James
Chandler, Ronald
Chappell, Bryce
Chappell, Charles
ACC-2
Chappell, Gwen and Bryce
ACC-2
Chappell, Marion
ACC-12 ; GEN-13
Chapple, Gordon
REC-1, 4
Charnaeski, Christine
GRAZ-3; WSA-2, 3
Chase, Rebecca
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Chasnoff, Beth
ACC-1; GRAZ-5
Chatwin, Jared and Melissa
Chaume, Scott
ACC-1, 10; GRAZ-1; WSA-3
Chavez, Jodi
Chen, Allen
ACC-1; WAT-4; WSA-2
Cherry, Russell
Chester, Blair
Chiapella, Lynn
GEN-2, 11; LAND-1; REC-1, 8;
WSR-1
Child, Connie
Child, Dean
ACC-2, 5, 8, 9, 10, 11
Child, Neil and Regina
ACC-2; GEN-9; WSR-4
Child, Ron
ACC-10
Child, Sandra and Warren
Child, Sue
Childs, Nat
GEN-1
Childs, Ted
ACC-10
Chizewsk, Nicholas
Chong, Michelle
ACC-1; GRAZ-5; LAND-1; REC-2 ;
WSR-1
Chrestinos, A.
Christiansen, Steven
Christensen, Boyd
Christensen, Don
Christensen, Dorothy
GRAZ-5; WSR-4
Christensen, Elenore
Christensen, Eric
ACC-1, 5; REC-1
Christensen, Gary
Christensen, Gordon
Christensen, Jay
Christensen Jerry
Christensen, Mike
Christensen, Rex
Christensen, Robert and Mary
Christensen, Roger
Christensen, Scott
Christensen, Scott
Christensen, Sean
Christensen, Ted
Christensen, Todd
GRAZ-3 ; REC-2; WSA-1, 3
Christenson, N.
Christiansen, Jean
Christiansen, Merlin
Christman, Diane
GRAZ-3; REC-2; WSA-3
Christy, Andrea
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSR-1
Church, Dennis
Church, Elaine
GEN-13; GRAZ-5; REC-1
Chynoweth, Klay
Chynoweth, Ralph
GRAZ-5
Chynoweth, Savannah
Chynoweth, Chystal
REC-1
Cicerchi, Michael
ACC-3
Cichowski, Steven and Amy
ACC-1, 13; GEN-1; GRAZ-3;
LAND-1; REC-2; WSA-2;
WSR-1
Cieply, Peter
GRAZ-3 ; REC-2
Cilimburg, Amy
ACC-1; GEN-12, 22; WSR-6
Cimon, Norm and Shelley
ACC-1; GEN-1, 5
Cinquemani, D.K. and F.L.
ACC-2
Cioith, Robert
Clancy, Bob
ACC-1
Clapp, Laura and Andrew
Clark, Annie
Clark, Benjamin
GRAZ-5; REC-2; WSA-3
Clark, Camille
Clark, Carolyn
ACC-1, 5; GRAZ-3; REC-1, 2
Clark, Denise
ACC-2; REC-1
Clark, Don
Clark, Douglas
ACC-1; GEN-1, 5
Clark, Elizabeth
BIO-1; GEN-5; GRAZ-5; REC-2, 10
Clark, Jo
ACC-1; GRAZ-1, 3, 5
Clark, Jonni
Clark, Karen
REC-8
Clark, L.
Clark, Linda
Clark, Liz
Clark, Scott
GEN-22; REC-2; WSA-2
Clark, Steven
GRAZ-1
Clark, Suzanne
GEN-1; GRAZ-1
Clarkson, Dale
ACC-8
Classen, Thomas
ACC-13; GEN-1; GRAZ-3

Clauser, Greg
GRAZ-1; WSR-1
Claybaugh, Dean
Clayton, David
GEN-30; GRAZ-1
Clayton, Scot
Cleary, Christopher
ACC-1
Clegg, Andrew
Clements, Brad
Clements, David
Clements, Lane
Clevenger, Matt
ACC-1; GEN-1, 5
Clifton, Robert
Clinard, Sallie
Clinger, Edith
Cloud, Bill and Jane
REC-8
Clove, Randy
Cloward, Brent
Cloward, Steven
Cluff, Kenneth
Coains, Faye
ACC-5; GEN-1; WSA-2
Coates, Randy and Elizabeth
ACC-3; LAND-1
Cobb, Nancy
REC-1
Cobb, Stephanie
ACC-1; GRAZ-5; REC-2; WSA-3
Cobble, Dane
GRAZ-5; REC-2
Cochran, Dennis
BIO-1; GRAZ-1
Cochran, Fay
Cochran, Sioux
GEN-9
Coe, K.H.
GRAZ-5; REC-2
Coelho, Katy
ACC-13; GEN-1; GRAZ-3
Cogan, Janie
Coggin, Mason
Cohen, Andrea
GRAZ-3

Cohen, Catherine
GEN-1; GRAZ-3; LAND-1; REC-2;
WSR-3
Cohen, Michael
GEN-31
Cohn, Mike
Cohn, Helen
Colavito, Michael
Gen-12; GRAZ-3; WSA-3; WSR-6
Colby, Dean
ACC-10; GRAZ-3; WSA-3
Colby, Mark
ACC-5
Cole, Roger
REC-2
Coleman, Barbara
GRAZ-3; REC-2; WSA-2
Coleman, Rick
Coleman, Rasco
ACC-2, 7; GEN-1, 13; GRAZ-5
Coleman, Wade
GEN-1, 13; GRAZ-5; WSR-3
Coleman, Gery
ACC-2; GEN-1, 13; GRAZ-5
Coley, Phillis
ACC-5
Collard, Curtis
Collet, Bruce
Collett, Shelley
ACC-1; GEN-1; GRAZ-5; LAND-1;
REC-2, 7; WSR-1
Collings, Howard
Collins, Daniel
REC-2
Collins, David
GRAZ-3; REC-2
Collins, Kenneth
GRAZ-1; REC-2
Collins, Luke
GRAZ-3; REC-2
Collins, Shan
ACC-5, 10; GRAZ-5; REC-2; WAT-4
Colton, Chris
ACC-2, 8
Colton, D
GRAZ-1

Compher, Dean and Mary Louise
REC-1
Con, Pe
Conard, Jonathan
LAND-1; REC-2
Conder, Larry
Condie, Art
Condie, Craig
ACC-1
Condie, Kent
ACC-1
Cone, Frances
ACC-1, 13; GEN-1; GRAZ-3, 5;
REC-2; WSA-3
Conk, John
Conklin, Nancy
GRAZ-3; REC-2
Conlee, Jennifer
GRAZ-5; REC-2
Connair, Martin
Connally, James
Connell, Karen
ACC-13; GEN-1; GRAZ-3
Conner, Kay
GRAZ-1; REC-2
Connor, Beth
GEN-5; REC-1
Connover, Charlie
Conover, Paul
ACC-10
Contine, Ben
ACC-1; GRAZ-5; REC-2; WSA-3
Contor, Patrick
ACC-1; GEN-1; GEN-22
Conway, Guy
ACC-2
Conway, Mike
ACC-2
Conway, Huey Jr.
Conwell, Robert
Cook, Idonna
Cook, James
GRAZ-3
Cook, Jay
GRAZ-3; REC-2
Cook, Jonathan
ACC-1; GEN-1, 5

Cook, Lou
Cook, Robert
Cook, Walter
ACC-1; GRAZ-1; WSR-1
Cooley, Alec
ACC-1; GRAZ-3; WSA-2
Coolidge, Hilary
ACC-1; GEN-1, 5
Coons, Scott
Cooper, Arnold
Cooper, Gerry
Coover, MP and Mac
ACC-1; GRAZ-1, 3, 5
Copeland, V.A.
Copley, Jay
ACC-13; GEN-1; GRAZ-3
Copoulos, John
ACC-5, 10; GRAZ-3; REC-2; WSA-3
Copple, N.
Coppoletta, Michelle
Corbelletta, Nancy
REC-8
Corbett, Susan
REC-2
Corbett, Given
Corbett, Jack
Cordner, Dean
Corkle, Patrick
GRAZ-3; REC-2
Corkle, Violet
GRAZ-3; REC-2
Corkle, William
GRAZ-3; REC-2
Cornelius, Bruce and Arlene
Corregin, Danial
Correll, Nancy
Corson, Katherine
GRAZ-1
Cortum, Daniel
Cosgrove, Sean
ACC-1; GEN-1; GRAZ-1; LAND-1;
WSR-1
Cosmann, Nicole
GRAZ-5; REC-2
Costello, Joseph and Jamie
ACC-5; GEN-1, 13; GRAZ-5; REC-1

Costigan, Constance
GRAZ-3; REC-2
Cotts, Laura
ACC-1; REC-2; WSA-2
Cou, Joe
Coulter, Bill and Karen
Coulter, Mr and Mrs E. R.
Courrety, Michael
Courtney, Darril
Courtney, Ross
Courtney, Sara
Cousins, Vera
ACC-13; GEN-1; GRAZ-3
Couvillion, Douglas
ACC-1; GRAZ-5; REC-2, WSA-3
Cowan, Greg
Cowan, Jason
Cowan, Mike
Cowdery, Seth
ACC-10; REC-2; WSA-2
Cowell, Andrew
ACC-1; BIO-4; GRAZ-5; LAND-1;
REC-2; WSA-3; WSR-1
Cowley, Megan
GEN-1
Cowley, Stewart
Cowman, Charles Jr.
Cox, Angel
Cox, Brian
Cox, J.
Cox, Karen
GRAZ-3 ; REC-2
Cox, Lori
REC-8
Cox, Lynn
ACC-10, WAT-4, WSA-2
Cox, Mary
ACC-1; GEN-22; REC-2
Cox, Paul
Cox, Sam
Cox, Shauna
Cox, Susan
GRAZ-3; REC-2
Cox, Todd
Cox, William
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2, WSA-2

Crago, Michael
GEN-1, 5, WSA-2
Craig, Marguerite
GRAZ-3; REC-2, WSA-2
Craig, Matt
GRAZ-3
Craighead, Brandon
Crandall, Angela and Dan
ACC-1; GEN-5; GRAZ-3; LAND-1;
REC-2; WSR-1
Crandall, Liz
Cranson, David and Jo
Crapanzano, Joseph and Laura
Crawley, Shelley
Crawford, Darwin
GEN-1; LAND-1; WSR-3; WSR-4
Crawford, Nicole
ACC-13; GEN-1; GRAZ-3
Crawford, Sam and Patti
REC-8
Creager, Don
Crites, Michael
ACC-1; GRAZ-5; REC-2, WSA-3
Crockett, Kyle
Crockett, Teresa
ACC-1; GEN-22, 27, 28, GRAZ-3;
LAND-1; REC-2, WSA-2
Croft, Carl
Croft, David
ACC-11
Croft, Doug
GEN-1
Croft, Linda
Croft, Scott
ACC-2 ; GEN-1
Crofts, Brady
GEN-13; GRAZ-5; REC-1
Crofts, Gloria
Cronin, Jim
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2, WSR-1
Crooks, Koby
GEN-1
Crooks, Charles Jr.
GRAZ-3; REC-2
Cropper, Leigh

Crothe, Shirly
REC-8
Crouse, Stewart
Cruce, Greg
Cruens, Christine
Crui, Bernice
REC-8
Crumal, Chris
GRAZ-3; REC-2
Crupi, Kevin
GEN-1
Cryer, Deanna
GRAZ-3; REC-2
Cummer, Sally
GRAZ-3; REC-2
Cunningham, E. Craig and Eileen
BIO-1; GRAZ-1; LAND-3; REC-2;
WSA-2
Cunningham, Marci
REC-1
Cunningham, Tim
GRAZ-3; REC-2
Cuomo, John
ACC-10 ;WAT-4 ; WSA-2
Curran, Edmund and Ann
ACC-1
Curran, Tom
GRAZ-1; REC-2
Curran, Tom
Curtis, Brooks
Curtis, Dennis
Curtis, Vicky
Curtis, Walt
GRAZ-1
Curtwright, George
GEN-13; GRAZ-3, 5, LAND-1
Custer, Bill
Cuthbert, Paul
GEN-5; WSA-2
Cutler, Cathryn
ACC-1; GRAZ-5, REC-2, WSA-3
Cyra, Tom
Czapla, Barbara
GEN-1; WAT-4, WSA-2
D., Vonn
ACC-20; BIO-5; GEN-13; GRAZ-3, 5;
REC-1

D'Aura, Paul
Dahlquist, Shane
Daines, Cathy
Daines, Andrew
Daines, James
Daines, Jonathon
Daines, Kris
Daines, Mark
Daines, Jonathan II
Dairy, Danny
Daley, John
Dallaro, Louis
Dallin, Bob
Dalsemer, Richard
GRAZ-3; REC-2
Dalton, Bryce
[illegible], Sean
ACC-1
Dankner, Kristian
GRAZ-5 ; REC-2
Dangerfield, Wendell
Daniel, Cliff
ACC-2
Daniels, Stephen
Daniels, Art II
Danley, Kim
ACC-1, 19 ; GEN-1
Danzler, David
Daponte, Kenneth
REC-1
Darling, Dorothy and George
Darling, Robert
Darnell, Jeff
Dar[illegible], Laura and Carl
Darrell, Steve
Darvill, Fred Jr.
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2; WSR-1
Daryland, Leeza
ACC-1; GEN-1; GRAZ-3; WSR-1
Dassel, Bruce
GEN-1; GRAZ-3; LAND-1; REC-2;
WSR-1
Datashoe, Clair
Daughenbaugh, Clayton
GRAZ-3; REC-2
Daugherty, Ernest

Davenport, Alisa
Davenport, Tim
Davidson, Alix
GRAZ-3
Davidson, Bruce
Davidson, Sam
ACC-1; BIO-6, REC-10, WSA-2
Davis, Chuck
ACC-10
Davies, Heather
ACC-1; GRAZ-5, REC-2 ; WSA-3
Davis, Al
Davis, Allan
Davis, Bill
Davis, Brent
Davis, Chuck
ACC-1; GRAZ-5, REC-2, WSA-3
Davis, Cliff
Davis, Delbert
GEN-1; GRAZ-1, REC-2
Davis, Douglas
Davis, Gary
Davis, Gordon
Davis, Jill
Davis, Jim
Davis, Kathryn
GRAZ-1; REC-2
Davis, Keith and Deborah
Davis, Michael
BIO-6, REC-10
Davis, R. Dennis
GRAZ-3; REC-2
Davis, Randy
ACC-2
Davis, Reginald
Davis, Richard
GRAZ-3 ; REC-2
Davis, Richard
GRAZ-1; REC-2
Davis, Richard
Davis, Rio
Davis, Robert
ACC-13; GEN-1; GRAZ-3
Davis, Ron
Davis, Vernon Jr.
Davlantes, Nancy
ACC-13; GEN-1; GRAZ-3, WSA-2

Dawdy, Ken
ACC-1, WSA-1
Dawson, Alexandra
REC-2
Dawson, Ted
GRAZ-5, REC-2
Day, David
Day, James
Day, Jennifer
ACC-1, GRAZ-5, REC-2, WSA-3
Day, Roger and Janice
Dayton, DeAnn
BIO-1, GEN-5, GRAZ-5, REC-2, 10
de Bellis, Tony
REC-2
de Nevers, Noel
Dean, Ray
Debrik, Rob
REC-2
Dec, Eric
ACC-1; GRAZ-5, REC-2, WSA-3
Decker, James
REC-2
Deer, Otto
Deetha, Matthew, Ph.D.
DeFever, Drew
GRAZ-5, REC-2
Degenhart, Dick and Sandra
REC-1
DeHaan, Gary
DeHart, Wilbur
Deherrity, Michael
DeJarnett, Kenneth
DeJong, Connie
REC-1; REC-8
Delano, Joseph
ACC-1; GRAZ-5, LAND-1; REC-2,
WSA-3, WSR-1
DeLeeuw, David
GRAZ-3
DelliBella, Lew
Demack, Delores
Demack, Jerome
DeMark, Ken
DeMille, Gary
DeMille, Ken
Deming, Rick

Demkowicz, John and Mary
DeMore, Dennis
ACC-1; GRAZ-5, WSR-1
Dempsey, Yvet
ACC-13; GEN-1; GRAZ-3
Denison, Mr and Mrs James
Denmarsh, T. Alexander
Denver, Lee
Derfler, Brandon
Derksen, Merritt
Derlington, Casey
Derstine, Mary
ACC-13; GEN-1; GRAZ-3
DeRuiter, Daria
DeRuiter, James
GRAZ-3, REC-2
Derry, Bob
Desharnois, Katherine
GRAZ-3, REC-2
DeShazer, Vince
Despain, Joel
Desrosiers, Tamara
ACC-1; GEN-1; REC-2, WSA-2
DeTour, Darell
ACC-1; GRAZ-5, LAND-1; REC-2,
WSR-1
Dettamanti, Michell
ACC-2; BIO-1; GEN-7; GRAZ-5
Dettamanti, Mike
ACC-5, 20, 24, BIO-5, 13, GEN-1, 9,
38, 45
Deulenia, Larry
Devereaux, Lew
Devoe, John
GRAZ-3, REC-2
DeVought, David and Marilyn
ACC-2; BIO-5, GEN-1, 13, GRAZ-5,
WSR-3
DeVries, Cory
Dew, Maggie
REC-2
Dewey, Daryl
Deyl, Susan
ACC-13; GEN-1; GRAZ-3
Di Nunzio, John
Diamond, Jeff
Dibble, Ken and Angie

DiChiara, Tim
GRAZ-3, REC-2, WSA-3
Dickerman, Pat
GEN-1; REC-1
Dickermann, Jeffrey
ACC-1; GRAZ-3, REC-2, WSA-2
Dickmann, Margaret
Dickson, Fred
Dickson, Sidney
Diegel, Janette
ACC-1
Diegel, Paul
ACC-1
Diehl, Norma
Diemann, Connie
ACC-1; GRAZ-5, REC-2
Dietrich, Robert
GEN-22, GRAZ-5
Digby, Jean
ACC-1; GRAZ-5, REC-2, WSA-3
Diggins, Suzanne
ACC-1; GEN-1; GRAZ-3, REC-2,
WSR-1
DiGiralamo, Paul
GRAZ-3, WSA-1
DiJulio, Sarah
ACC-1; GEN-1, 22, GRAZ-5,
LAND-1; REC-2, WSR-1
WSA-2
Dillenbeck, Vernon
Dimpleton, Jane
REC-2
Dinger, Marilyn
ACC-1, 5, 10, 13; BIO-1; GEN-1, 5;
GRAZ-3; LAND-1; REC-1, 2, 10,
WSA-2; WSR-1
Dirks, T
ACC-13; GEN-1; GRAZ-3
Divine, Isabel
BIO-1; GRAZ-3
Dixon, Bryan
ACC-1; GRAZ-1
Dobson, Gerald
Dodd, Douglas
Dodson, Susan and Steve
Doelling, Hellmut
ACC-1, 6; REC-1

Dolan, John
GEN-3; GRAZ-3; REC-2
Dombek, John
GRAZ-1
Domingos, Randy
ACC-2, 8
Donahue, Michael
GRAZ-3 ; REC-2; WSA-3
Donegan, Ben
GEN-7, 22
Donze, Terry
Dorey, Mike
Dorfman, Bridger
GRAZ-3; REC-2
Dorgan, Gary and Claire
Domeman, Katrina
Dorsey, Bryan
ACC-12; GEN-1, 5
Dorthest, Robert
Douglas, Ramey
GEN-1, 5
Douglass, Inez
BIO-5; GEN-1, 13
Douglass, Kenst
GEN-1, 13; GRAZ-5
Dove, Eric
Dove, James
REC-1
Dowds, Philip
Downard, Michael
Downer, Lee
ACC-9, 14, 15, 16; WSA-3
Downing, McLane
GRAZ-3; REC-2; WSA-3
Downs, Janet
ACC-1; GRAZ-5; REC-2; WSA-3
Downs, Sylvia
ACC-1; GRAZ-5; REC-2; WSA-3
Downward, Terry
Doyle, Kevin
ACC-5 ; WSA-2
Doyle, Lyle
Drake, Dennis
REC-1
Drake, Michael
ACC-13; GEN-1; GRAZ-3

Drew, Josh
ACC-1; GRAZ-5; REC-2; WSA-3
Drewes, Warren
Droesbeke, Richard
ACC-12; GEN-1; REC-12
Drollette, Richard
Droubay, Scott
Drown, Dave and Sue
ACC-1; GRAZ-1, 3, 5
Drummend, Willa
Drummond, Robert
Drysdale, Jeanne
Duane, Timothy
Duba, Roger
ACC-1; GEN-1; GRAZ-3; REC-2;
WSA-2; WSR-1
Ducsai, John
ACC-1; GRAZ-5; REC-2; WSA-3
Dudley, Denise
REC-1, 8
Dudley, George
GRAZ-3; REC-2
Dudley, James
Dudman, Barbara
ACC-1; GRAZ-3; REC-2
Dudy, Carolyn
Duff, Jody
Dugger, Donald
ACC-1; GRAZ-5; REC-2; WSA-3
Dull, Jonathan
GRAZ-3; REC-2
Duman, Chris
Dumas, Crockett and Sharon
GEN-15; REC-1
Duncan, Douglas
REC-2
Duncan, Elly
ACC-20, 5; BIO-9; GEN-12, 22;
GRAZ-3; REC-2
Duncan, Gail
Duncan, Ken
ACC-1, 13; GEN-1; GRAZ-3; LAND-1; REC-2
Duncan, Theresa
ACC-1; GRAZ-5; REC-2; WSA-3
Duncan, Thomas
Duncan, William

Dunn, Alison
REC-8
Dunne, Loretta
ACC-1; GRAZ-5; REC-2; WSA-3
Durbeck, Lisa
GEN-5; GRAZ-1; LAND-1; REC-2
Durbin, Jean
GEN-1; GRAZ-1; REC-2
Durden, Brenda
Durfee, Leisha
GRAZ-3; REC-2
Durrance, Robin
REC-8
Duryee, Kent
ACC-1; WAT-4
Dutamanti, Richard and Evelyn
ACC-2; GEN-1; GEN-15
Dutson, Roberta
Dutton, John
Dyer, D
Dyer, Donald
Dyer, Elizabeth
GRAZ-1
Eaton ,Jeffrey
ACC-3, 4. 5, 6
Eagan, Jeffrey
Earnest, Anita
ACC-1; GRAZ-5; REC-2; WSA-3
Easler, Malcolm
ACC-1; GRAZ-5; REC-2; WSA-3
Easter, Mark
Eaton, Veldon
Ebert, Virginia
GRAZ-5; REC-2
Eberz, Noel
ACC-12
Eckels, Ellen
ACC-1; LAND-1
Economou, Constantina
GRAZ-1, 3, 5; REC-2
Eddy, Kristen
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Eddy, Tyler
REC-1
Edison, John

Edmison, Brad
GRAZ-5; REC-2; WSR-1
Edsall, Jane
GEN-1, 5; GRAZ-3; REC-2
Edsall, John
Edvalson, Beth
Edwards, Michael
GRAZ-3; REC-2
Edwards, Skip
Edwards, Terry
ACC-2; GEN-7; LAND-1
Egan, Veronica
ACC-10; GEN-5; GRAZ-3
Egbert, Mark
Egemeier, Robert
ACC-1; GEN-1; GRAZ-3; REC-2
Eggeet, Dee and Debbie
Ehmann, William
ACC-1; GRAZ-3; REC-2, 8
Ehrig, John
ACC-5, 10; WSA-2
Eidsmoe, Robert
GEN-1, 22; WSA-2
Eiseman, Robin
REC-2
Eisenberg, Tim
ACC-1; GRAZ-5; REC-2; WSA-3
Eklund, Mark
ACC-1; GEN-1, 5; GRAZ-1; REC-2
Elbel, Fred
Elbert, Marlow
Elcock, Eric
Elder, Frank
Elgerd, Katie
Elkind, Linda
ACC-1; GRAZ-3; LAND-1; WSR-1
Ellenberger, David
ACC-1; GRAZ-5; REC-2; WSA-3
Ellenberger, Robert
Elliott, Kenneth
Elliott, Ray
Elliott, Sally
ACC-1; GRAZ-3; REC-2
Ellis, Shawn
Ellison, Suzie
ACC-1; GEN-5, 21; GRAZ-1, 3;
REC-2; WSA-1, 2; WSR-1

Ellits, Stephen
ACC-2; GEN-13, 15; GRAZ-5
Ellitt, Karen
ACC-12; GEN-13
Elm, Cynthia
REC-2
Elroy, John
Elton, Wally
ACC-1, 10; GEN-5; GRAZ-3; LAND-1
Elwood, David
REC-1
Emery, Joy
ACC-3
Ence, Cathern
Ence, Darryl
Enderle, John
ACC-1; GRAZ-3; WSA-3
Engel, Donald
Engeseth, Clara
Engle, Ron
English, William
GRAZ-3; REC-2
Enlinger, Kenny
GRAZ-1; REC-2; WSA-3
Epstein, Lois
GRAZ-3; REC-2
Epstein, Susan
GRAZ-3
Ercanbrack, Robert
Erger, James
ACC-1; GRAZ-5; REC-2; WSA-3
Erhard, Constance
ACC-1; GRAZ-5
Erickson, Anne
ACC-1; GEN-5; REC-2
Erickson, Barry
Erickson, Dell
ACC-13; GEN-1; GRAZ-3; REC-2
Erickson, Judy
Erickson, Krista
Erickson, Wayne
ACC-2
Erley, David
REC-2; WSA-3
Erskine, L.
ACC-1; GRAZ-5; REC-2; WSA-3
Ervin, Nick
ACC-1; GRAZ-3; REC-2
Ervine, Donald
Esplin, Jeff
Esplin, John
Esplin, Johnny
Esplin, Lola
ACC-2; BIO-4; REC-8
Esplin, Merlin
ACC-5, 20; LAND-5; WAT-5, 6;
WSR-3, 10
Esplin, Tina
Esplin, Virginia
Esplin, Wyatt
Estes, Newt
GRAZ-5; REC-2; WSA-3
Etheridge, Judith
REC-1, 8
Euall, Richard
Evans, Bud
ACC-10; WSA-2
Evans, C.
Evans, Cheryl
Evans, Don
Evans, James
Evans, John, Michele and Brittany
GRAZ-3; REC-2
Evans, Kenneth
GEN-5; REC-1
Evans, Stephen
GRAZ-3; REC-2; WSA-2
Evel, Ed
Evens, Brad
Evenson, William
ACC-5; WSA-2
Everett, Randy
Ewell, Chad
Ewers, Elois
REC-8
Ewert, Sara and Eric
GRAZ-3; REC-2
Eyre, Calvin
Facelli, Julio
ACC-1
Fackrell, Vickie
Faddis, Dewayne
Fager, Steve
ACC-3; GEN-1, 5, 6, 22; WSA-3
Fahrenbruch, Roland
Fairfield, Barbara
ACC-4
Faisy, Roger
Fankuchen, Steve
Farless, Terry
ACC-5; GEN-5; WSA-2
Farley, Robert
ACC-1; GRAZ-1, 3, 5
Farley, William
Farmer, James
Farnsworth, Dell
Farquhar, Mark
ACC-2
Farr, David
ACC-13; GEN-1; GRAZ-3
Farrell, Timothy
GRAZ-1
Farrin, Alison
REC-1, 8
Fassett, Caleb
ACC-1; GRAZ-5; REC-2; WSA-3
Faucett, Thomas
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Faulkner, Cheryl
REC-8
Faulon, Danny and Joan
Fausett, Blake
Faustine, Pamela
ACC-1; GRAZ-5; REC-2; WSA-3
Favret, Paul, Sylvia, and Jake
Feazel, Elizabeth
GRAZ-3; REC-2
Fedrileck, Neil
Federici, Todd
ACC-1; GEN-1; WSA-2
Fegard, Stephen and Charen
ACC-1; GRAZ-5; REC-2; WSA-3
Fein, Estelle
GRAZ-3; REC-2
Feinsilber, Holly
ACC-1; GEN-1, 5
Feldman, Alex
REC-2; WSA-3
Feldman, Jane
GRAZ-3; REC-2; WSA-3
Feldman, Mary
GRAZ-3; REC-2; WSA-3
Felt, Sy
REC-2
Feltner, Cheri
Feltner Steven
BIO-4
Feltner, Tari
Felton, Sally
GEN-1; LAND-1; WSR-1
Felts, Carl
ACC-13; GEN-1; GRAZ-3
Fencl, Rick
WSA-2
Fender, C.
ACC-10; GRAZ-3
Fenning, Rebecca
ACC-1; GRAZ-5; REC-2; WSA-3
Ferguson, Jason
Ferguson, Jerry
Ferick, John
Ferri, Diane
Ferrin, Calvin
REC-1
Ferris, Jim
REC-8
Ferry, Al
ACC-5; REC-1
Fertal, Andy
GRAZ-3; REC-2; WSA-2
Fetzer, Herold
Fiddler, Richard
GRAZ-3; REC-2; WSA-3
Field, Loyd
Fields, Mary
REC-1, 8
Fifield, Gary
Fillmore, John
Fillmore, Robert
ACC-1; GEN-1, 5; GRAZ-1; REC-2
Finch, Shril
Finch, William
Fingerhut, Ber
ACC-1; GRAZ-3; REC-2; WSA-1, 3

Finkelstein, Loren
ACC-1; GEN-1
Finkelstein, Michael
Finlayson, Dan
Finucane, Steve
GEN-1, 5
Fischer, Roxy
Fish, Jackie
Fish, James
Fisher, Carrie
Fisher, Dennis
GRAZ-1, 3; REC-2
Fisher, Dennis
ACC-13; GEN-1; GRAZ-3
Fisher, Eric
Fisher, Erik
ACC-1, 10; GEN-1; GRAZ-3;
LAND-1; REC-2
Fisher, James
Fisher, Kevin
Fisher, Kim
Fisher, Laura
ACC-1; GRAZ-1, 3, 5
Fisher, Linda
REC-1, 8
Fisher, Pete and Joanne
ACC-1; GRAZ-5; REC-2; WSA-3
Fite, Katie
ACC-1; GRAZ-1, 3, 5
Fite, Richard
GEN-1; REC-2
Fitzpatrick, Eric
Fjelsted, Julia
GRAZ-3; REC-2
Flake, Victor
GRAZ-3; REC-2
Flanderka, Mary
ACC-1; GRAZ-5; REC-2; WSA-3
Flaumenbaum, Steve
ACC-1; GRAZ-5; REC-2; WSA-3
Fleming, Dan
Fleming, Lisa
ACC-13; GEN-1; GRAZ-3
Flemmer, Linda
REC-8
Fletcher, Bryce
ACC-2

Fletcher, Colin
GRAZ-3; REC-2
Fletcher, John
Fletcher, Larry
ACC-2, 12
Fletcher, Monica
GRAZ-3; REC-2; WSA-2
Flinchpaugh, Christopher
Flinn, Brian
ACC-10; GEN-1; GRAZ-3; LAND-1;
REC-2; WSA-2
Flinner, Matt
GRAZ-1
Floor, Jeffrey
ACC-5; REC-1
Floyd, Frederick
GRAZ-3; REC-2
Flynn, Roger
ACC-13; GEN-1; GRAZ-3
Fogarty, Pat
Fogelberg, Brent
GRAZ-1
Fogelberg-Billette, Cheryl
GRAZ-5
Foley, William
GRAZ-3; REC-2
Folks, Dawn
Folland, Gerald
REC-2
Follett, Matthew,
ACC-1; GRAZ-5; REC-2; WSA-3
Follis, George
Fong, Mark
ACC-10; WSA-3
Fonger, Eugene
Fonken, Pete
ACC-1; GEN-1, 5
Fontenot, Donald
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Fonz, Ron
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2; WSR-1
Forbes, Bruce
Forbes, Lynn
GRAZ-1
Forbes, Rob

Force, Mark
ACC-10
Ford, Elbert
GRAZ-3; REC-2
Ford, Garrett
REC-8
Ford, JoAnn
Ford, Julie
Ford, Louie
Ford, Norman and Sheila
Ford, Roger
Fordham, Neoma
Forrester, Robert Jr.
GRAZ-5; REC-2
Forsyth, Tori
Fortin, Elizabeth
GEN-1; GRAZ-3; REC-2; WSR-1
Fortunato, Nik
ACC-1; GRAZ-5; REC-2; WSA-3
Foster, Dorothy
REC-8
Foster, Grace
WSA-1, 2
Foster, Jana
GEN-15
Foster, John
Foster, Kyle
Foulger, Jeannie and Graydon
GRAZ-3; REC-2
Fowers, Joan
Fowkes, Shawn
Fowler, James
ACC-13; GEN-1; GRAZ-3
Fowles, Darryl
Fox, Jeff
Fox, Kyle
Fox, Leigh
GRAZ-3
Fox, Margi
GRAZ-3; REC-2
Fox, Mason
ACC-1; GEN-1, 13; GRAZ-5
Fox, Megan
ACC-2; GEN-13; GRAZ-5
Foy, Bernard
GEN-22; WSR-1

Francisco, Frank
ACC-1; GRAZ-5; REC-2; WSA-3
Francoeur, Cleve Jr.
Frandsen, Clay
Frandsen, Elden
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Frandsen, Jan
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Frandsen, Tracy
Frandson, Richard
Frank, Daniel
ACC-5; GEN-1; GRAZ-7; WAT-2, 6;
WSR-10
Frank, Paul
GEN-5; REC-2
Frantzen, Clark
ACC-4, 10, 14, 17, 21, 22, 23
Franzi, James and family
Fraser, Robert
GRAZ-3; REC-2
Freed, Janis
REC-8
Freeman, Barbara
REC-8
Freeman, Carl
GEN-1; GEN-22
Freeman, Dal
Freeman, Jim
Freeman, Margaret and Alan
Freeman, Nora
Frei, Landon
ACC-2; BIO-4; REC-8
Frei, Robert
French, Mike
Freund, Elizabeth
Freundlich, Craig
Frey, Scott
ACC-2; REC-14
Friant, Kent
Frichknect, Kay
Frick, Richard
ACC-7
Frick, Walter
Friedemann, Bruce
GRAZ-1; WSA-2
Friederici, Peter
ACC-1; GEN-5

248

BEST COPY AVAILABLE

Friedman, Ann and Joe
GRAZ-3
Friedman, Bob
ACC-10; LAND-1; REC-2
Friedman, Laura
REC-8
Friedman, Laurie
Friel, Robert
Fries, Christopher
ACC-13; GEN-1; GRAZ-3
Frisby, Charles
Frohn, Joyce
Fronk, Eric
Frooms, Linda
GRAZ-1; REC-2
Frost, Kit
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Frux, Gregory
GRAZ-3; REC-2
Fuller, Robert
GEN-16
Fulmer, Jared
Funk, Kenny
Furman, Mark
ACC-2
Furze, James and Pamela
Gray, Wesley
ACC-10
Gabri, Charles and Nanci
REC-8
Gabriel, Tim
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSR-1
Gabrielse, D. Randall
ACC-1; GRAZ-5; REC-2; WSA-3
Gaillard, Elaina
ACC-13; GEN-1; GRAZ-3
Galbiati, Jim
Gallagher, Eileen
GRAZ-3; REC-2; WSA-2
Gallamore, Elveen
ACC-2
Gallamore, Howard
ACC-2; GEN-1, 13, 15, 43, 44, 45;
GRAZ-3, 5; LAND-1, 5; REC-8;
WAT-2; WSR-3

Gambill, Joan
Gambino, James Jr.
ACC-13; GEN-1; GRAZ-3
Gammell, B. Clyde
Gano, David
ACC-1
Gardner, Brian
Gardner, Casey
GRAZ-1
Gardner, Kyle
ACC-1; GEN-1, 5
Gardner, Leo
ACC-8
Gardner, Mack
Gardner, Shaun and RaNae
BIO-1; GEN-5; GRAZ-3; REC-10
Gardner, Troy
Garmon, Jeff
ACC-1; GRAZ-5; REC-2; WSA-3
Garon, Vernon
REC-2
Garrett, K.A.
ACC-13; GEN-1; GRAZ-3
Garrett, Larry
Garrett, Marjorie
Garrigan, Laura
ACC-1; GRAZ-5; REC-2; WSA-3
Garthwait, Shirly and Howard
Gartland, Chris
ACC-13; GEN-1; GRAZ-3; REC-2
Gaskin, David
LAND-1; WSR-1
Gates, Pratt
ACC-5; GEN-1, 13; GRAZ-5
Gault, Shelly
GRAZ-3; REC-2
Gavin, P.T.
Gayda, Gabrielle
GEN-5
Gaydos, Bob
Gaz, Gary
Gebauer, Chris
GEN-5; REC-1
Gelb, Richard
GRAZ-3; REC-2; WSA-3
Gendron, Joseph
Genles, Jeffrey

Genser, Richard and Claire
GRAZ-3
George, William
GEN-5
George, Tommy
Gerard, Jennifer
Gerber, Scott
Gernant, Jo Anne
REC-8
Gerner, Michael, Ph.D.
ACC-1, 3
Gerrard, David
Gerstein, Brad
ACC-1; GRAZ-5; REC-2; WSA-3
Gersten, Carey
GRAZ-3, 5; REC-2
Gettins, Kim
Gibbins, Gerald
Gibbs, Ennis
Gibson, Neal and Crystal
BIO-1; GRAZ-3
Gibson, Norman
Gibson, Pamela
ACC-1; GEN-1; WSA-2, 3; WSR-1
Giddings, Anthony
BIO-1; GEN-1, 13
Gidner, Richard
ACC-13; GEN-1; GRAZ-3
Giese, Mark
GRAZ-3; REC-2
Gigliotti, James
ACC-13; GEN-1; GRAZ-3
Gilbert, Barrie and Kathy
ACC-1; GRAZ-1, 3, 5
Gilbert, Janet
Gilbert, Kent
Gilbert, Tracy
ACC-13; GEN-1; GRAZ-3
Gilbertson, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Giles, Bill and Ann
GEN-1; REC-1
Giles, Joe
Giles, John
Giles, Kim
Giles, Nathan
Giles, John Jr.

Gillespie, Roger
Gillies, Heather
REC-8
Gillies, Von
ACC-1
Gillispie, Scott
Gilson, Betty, M.D.
Ginsburg, Joe
ACC-1, WAT-4
Giovale, Danny and Melissa
ACC-4; GRAZ-1
Gisler, John and Jan
GEN-1; REC-2
Givens, David
Gjerning, Arne
ACC-2, 10
Glass, George
ACC-2; BIO-4; REC-8
Glass, Thomas
Glazier, Byron and Roanna
Glazier, Greg
GEN-1
Glazier, Karen
GEN-1
Glazier, Kimberly
ACC-2, GEN-1, 13; GRAZ-5
Glazier, Trent
BIO-5; GEN-1, 13
Gleason, Peggy
Gleave, Andra
Gledhill, David and Marla
Glen, Donald
GEN-2, 5; GRAZ-3; REC-2, 8
Glenn, Stephen
ACC-1; BIO-4
Glidden, Jock
GRAZ-1; REC-2
Glover, Greg
ACC-2
Glover, Sherie
GEN-1, 13; GRAZ-5
Goddard, Kendall
Godley, Jim and Carrie
Goetsch, Matthew
ACC-13; GEN-1; GRAZ-3
Goetz, Patrick
ACC-13; GEN-1; GRAZ-3

Goetz, Scott
ACC-13; GEN-1; GRAZ-3
Goggins, Alan
ACC-1; GEN-1; GRAZ-3; REC-2;
WSR-1
Gokhale, Gauri
GEN-25
Gold, Robert
ACC-10; GEN-5; REC-1
Goldberg, Caren
GEN-1, 5
Goldberg, Ron
GRAZ-3; REC-2
Goldhammer, David
GEN-5; REC-1, 2
Goldman, Jeanne
REC-8
Goldschmidt, Karl
ACC-1; GRAZ-5; REC-2; WSA-3
Goldstein, Alexis
Goldstein Rick
GRAZ-3; REC-2
Goller, Linda
ACC-1; GRAZ-5; REC-2; WSA-3
Gomes, Jerry and Pam
ACC-2
Gone, Jim
Gontrum, David
ACC-1
Gonzales, Farrell
Gonzales, Henry
Gooch, James
BIO-1; GEN-5; GRAZ-2; REC-2
Good, John
Good-de Lepper, Stormy
GRAZ-1
Goode, Mariah
ACC-13; GEN-1; GRAZ-3
Gooding, John
REC-2
Goodwin, Richard
REC-8
Gorby, Ryan
ACC-13; GEN-1; GRAZ-3
Gordon, David
Gordon, Greg
ACC-1, 3; GEN-5; WSA-2

Gordon, Ivy
GRAZ-3; REC-2
Gordon, Ivy
ACC-10; WAT-4; WSA-2
Gordon, Michael
ACC-13; GEN-1; GRAZ-3
Gordon, Richard
GEN-1, 24
Gorman, M.E.
GRAZ-3, 5; REC-2; WSA-3
Gorman, D. Sr.
ACC-1; GRAZ-5; REC-2; WSA-3
Gorsetman, Mark
GRAZ-3; REC-2
Gose, Dave and Martha
ACC-1; GRAZ-1
Gottfried, Donald
ACC-1; GEN-22; GRAZ-3; REC-2
Gottschalk, Joy
GRAZ-3; REC-2
Gould, John
ACC-1; GEN-1, 5
Gove, Walter and Antonia
REC-2
Gower, Steven
Goyer Nate
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Grace, Raymond
ACC-13; GEN-1; GRAZ-3
Graff, Jan
Grah, Karen and Oliver
ACC-1; GRAZ-1, 3, 5
Grah, Steve
GEN-1; REC-2
Graham, Amanda
Graham, Jim and Barb
A'CC-10
Graham, John and Mariam
ACC-10; GEN-1; REC-2
Graham, Joseph
Graham, Mark
GRAZ-3; REC-2; WSA-3
Graham, Susan
REC-2; WSA-2
Gralia, Ross
GRAZ-1; REC-2

Grant, James
ACC-5
Grassetchi, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Gravina, David
ACC-13; GEN-1; GRAZ-3
Gravley, Monique
Gray, Gerald
Greco, Rick
Green, Doug
Green, Guy
Green, Joel
GRAZ-3; REC-1
Green, Robert
ACC-5; WSA-2
Green, Fay
ACC-2
Green, William
ACC-13; GEN-1; GRAZ-3
Greenfield, Judy
Greenhalgh, Doug
Greenhalyh, Brad
Greenleaf, Allen
GEN-5
Greenman, Jessea
GRAZ-3; REC-2
Greenstein, George
Greenwood, Kathy and Clyde
ACC-2
Gregerson, Joel and Amy
Gregory, Alan and Monica
GEN-1; GRAZ-3; REC-2; WSA-2;
WSR-1
Gregory, Kelly
Gregory, William
ACC-1, 10; GRAZ-3, 5; REC-2;
WSA-3
Grenersih, Molly
REC-2
Gridley, Darren
ACC-1; GRAZ-5; REC-2; WSA-3
Griffin, Bryan
Griffin, Clem
Griffin, Melonie
GEN-1; REC-2
Griffin, Quinn
Griffin, Randy

Griffith, Adam
Griffith, Erik
Griffith, Morrill
Griffiths, Jerry
Griffiths, Tad
Grisco, Mary
GEN-1; GRAZ-3; LAND-1; REC-2;
WSA-2; WSR-1
Griswold, Stacy
Grizzell, Steve
Gro, Neldon
Groen, John
ACC-2
'Gromer, Ray
Groms, Tom
ACC-1; GEN-1
Groo, Dallas
Gross, H
GEN-1
Gross, Mathew
ACC-10; REC-2; WSA-2
Gross, Miriam
ACC-13; GEN-1; GRAZ-3
Grossman, Elizabeth
ACC-5; GEN-5
Grosz, Wayne
ACC-7
Grover, Gary
ACC-1, 3, 13; GEN-1; GRAZ-3, 5;
LAND-1; REC-2; WSR-1
Grover, Ken
Grover, Kent
Grubbs, Bruce
ACC-1
Guerrieri, Bren
Guilford, Rhonda
REC-8
Guilfoyle, Kelly
GRAZ-3; WSA-3
Guinn, Jim
Gunderson, Bill
ACC-1, 10; GRAZ-3
Gunderson, Ed and Gisela
BIO-1; GEN-2, 5; GRAZ-3; REC-2, 8
Gunderson, Sean
Gunn, David
REC-2

Gunter, Ray
Gura, Nick and Catherine
GRAZ-1; REC-2
Gurley, Sara
Gurley, Shane
Gurley, Sherri
Gurley, Steve
Gurney, K.
Guthier, Paula
ACC-13; GEN-1; GRAZ-3; LAND-1
Guthrie, Alice
ACC-1; GEN-1, 5
Guy, Richard
Guyon, Peter and Caroline
ACC-3; REC-2
Haag, Wyatt
Haas, Duncan
ACC-1
Haas, John
ACC-10; GRAZ-3; REC-2
Habbeshaw, Mark and Judy
ACC-10; BIO-5; GRAZ-5; REC-1, 8
Hackbarth, Randy
Hadenfeldt, Vaughn
GRAZ-3; REC-2
Hadley, Steve
Hafen, Kara
Haggard, Ernest
Hagan, David
ACC-1
Hagan, Kenneth and Sharon
Hahle, John
Hake, Buff
Halama, Henry
GRAZ-3; REC-2
Halcom, Velva
Hald, Ken
ACC-2, 10; WSA-3
Hale, Jon
LAND-1
Hale, Robert
ACC-1; GRAZ-3; LAND-1; REC-2
Hale, Robert and Ruth
Halford, Larry
GEN-1
Hall, Charles
Hall, Clair

Hall, Donna
Hall, DuRell
Hall, Emily
ACC-1, 3; WAT-4
Hall, Gary
Hall, John
ACC-17; WSR-3
Hall, Jon
ACC-1; GRAZ-5; REC-2; WSA-3
Hall, Joy
ACC-1; GEN-1, 5
Hall, Linda
ACC-1; GEN-1
Hall, Lorin
Hall, Roland
ACC-2; BIO-4; REC-8
Hall, Shawn
Hall, Steven
Hall, William
Haller, Jon
ACC-13; GEN-1; GRAZ-3
Halligan, David
ACC-1; GEN-1; LAND-1; WAT-4,
WSA-2
Hallmark, Cullen
ACC-1; GEN-5
Hallows, Ted
Halls, Kerry
Halpern, Harvey
WSA-2
Halsey, Sean
Hamed, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Hamilton, Jack
Hamilton, Joan
ACC-1; GRAZ-5; REC-2; WSA-3
Hamilton, Karen
GEN-1; GRAZ-1
Hamilton, Patrick and Norma
ACC-1; GEN-1; GRAZ-1, 3; REC-2;
WSA-2; WSR-1
Hamilton, Warren
Hamilton, William
Hamlin, Tom
GRAZ-5; REC-2
Hammel, F. Chris
REC-1, 2

Hammer, Joyce
ACC-1; GEN-1; WAT-4; WSA-3
Hammett, Benjamin and Ruth
BIO-1; GEN-5; GRAZ-3; REC-2, 10;
WSA-2
Hammon, James
Hammond, Keith
ACC-1, 10; GEN-1; GRAZ-3; LAND-1; WSA-3; WSR-1
Hammons, William and Lorinda
Hampton, Kristen
ACC-13; GEN-1; GRAZ-3
Hampton, Michelle
ACC-1; GRAZ-5; REC-2; WSA-3
Hampton, Stephen
Hance, Billie J
REC-1
Hanchett, Brian
Hancock, Coleen
Hand, Stephanie
ACC-13; GEN-1; GRAZ-3
Handford, Art
Handley, Vance
GRAZ-3 ; REC-2; WSA-3
Handle, Kristine
Hands, Kathy
ACC-1; REC-2; WSR-1
Handwerger, David
GEN-1; WSA-3
Haney, David
Haney, Jeff
GRAZ-3; REC-2; WSA-2
Hanger, Eric
Hanks, Beryl
Hanks, Jonathan
Hannah, Jim and Shirley
GEN-1, 22; GRAZ-1; REC-1
Hannan, Ciaran
ACC-13; GEN-1; GRAZ-3
Hannig, Gary
Hannon, Steven
ACC-13; GEN-1; GRAZ-3
Hanrahan John
GEN-5; REC-2
Hansen Adam
Hansen, C. Clayton
Hansen, Coby

Hansen, Evan
Hansen, G. Scott
ACC-1, 10; BIO-4; GEN-1, 11;
LAND-1; REC-2; WAT-2; WSA-3,
WSR-1
Hansen, Gary
Hansen, Howard
Hansen, Jay
Hansen, Jeff
Hansen, Jerry
Hansen, Karen
Hansen, Kevin
Hansen, Marc
ACC-1; GRAZ-5; REC-2; WSA-3
Hansen, Michael
Hansen, Osey
Hansen, Richard
Hansen, Terry
ACC-13; GEN-1; GRAZ-3
Hansen, Vancy
Hansert, Donald
Hanson, Eric and Arsenia
ACC-1, 10; GRAZ-1
Hanson, Heath and Cheri
Harbison, Candis
GRAZ-3; REC-2
Hardebeck, Larry
Hardekopf, Douglas
ACC-2
Hardey, John
ACC-1, 5; REC-1
Harding, Brent
ACC-13; GEN-1; GRAZ-3
Hardinger, Ray
Hardman, Bill
Hardesca, Richard
Hardman, Young
Hardy, Cindy
GEN-1, 5, 11; GRAZ-3; LAND-1;
WSR-1
Hardy, Keith
Hardy, Leo, Roberta, Ashley, Jessica
and Jacob
ACC-10; WSA-3
Hardy, Pamela
ACC-10; WSA-2

251

Harford, Lennox
GRAZ-3, REC-2
Harling, Cheryl
Harmon, Barbara
Harmon, Ginger
ACC-1, GEN-5, GRAZ-5, WSA-3,
WSR-1
Harms, Bobbie
GRAZ-3, REC-2
Harms, Paul
GRAZ-3, REC-2
[illegible], Brad
[illegible], Frank and Ruth
[illegible], REC-2
[illegible], George
Harper, Monte
ACC-1, 10, GRAZ-3, REC-2, WSA-3
Harriman, Anne
Harris, Cathy
Harris, Craig
Harris, Donald
Harris, Jean
Harris, Jennifer
Harris, John
GRAZ-3, REC-2
Harris, Kim
Harris, Neil and Pamela
Harris, Roe
GRAZ-3, REC-2
Harris, Fred
Harris, Susan
Harris, Troy
Harris, Laurence Jr.
Harrison, Edward
ACC-10
Harrison, James
ACC-5, GEN-5, WSA-2
Harrison, Joy
ACC-1
Harrop, Blake
Harsany, John
Hart, David
GEN-1, GRAZ-1, REC-2, WSR-1
Hart, Timothy
ACC-1, GEN-5
Hartin, Kris
ACC-1, GRAZ-5, REC-2, WSA-3

Hartley, Dawn
ACC-13, GEN-1, GRAZ-3
Hartley, Mike
REC-2
Hartog, Dale
Harvey, Chuck
Harvey, David
ACC-13, GEN-1, GRAZ-3
Harvey, Don
Harvey, Doug and Sheryl
ACC-1, 10, BIO-1, GEN-5, LAND-1,
REC-2, 10
Harward, Velda
Haskamp, Dale
ACC-5, GEN-5, WSA-3
Haskell, Lee
Haslem, Glen
Hassell, Hank
ACC-12, GEN-26, WAT-3, WSA-2
Hassinger, Phillip
REC-1, 4
Hastings, Warren
Hatch, Dewey
Hatch, J
Hatch, Jerald
Hatch, Kent
Hatch, Mac
Hatch, Randy
Hatch, Robert
Hatch, Steven
Hatch, Ted
Hatley, Tom
GRAZ-3, REC-2
Hauflaire, Sylvia
Hause, Jared
Hauser, Tab
ACC-1
Haution, Juli
ACC-5, GEN-1, 13, GRAZ-5, REC-1
Hawes, Patty
REC-8
Hawkin, Robert
Hawkins, Barbara
ACC-1, GRAZ-5, REC-2, WSA-3
Hawkins, Clyde
Hawkins, Edwin
ACC-5, GEN-1, 13, GRAZ-5, REC-1

Hawkins, Gordon
Hawkins, Jason
ACC-1, GRAZ-5, REC-2, WSA-3
Hawley, Steve
Haws, Ann
Haws, Cindra
Haws, Robert
Haws, Val
Hayes, Ann and Bob
REC-8
Hayes, Dave and Jeanette
Hayes, III Charles
Hayhow, Reid
GEN-5
Haymore, Brand and Kay
Haynes, Verna
ACC-2, GEN-1, 13, GRAZ-5
Haynie, Paul
GEN-13, GRAZ-3, 5, LAND-1
Hays, Kris
ACC-5, GEN-1, 13, GRAZ-5, REC-1
Healey, Richard
Healy, Todd
Heaps, David
Heaps, William
Hearn, Jay
REC-1
Heath, Charles
Heath, Mike
Heath, Steven
ACC-4
Heaton, Tamara
ACC-10, GEN-22, GRAZ-3
Heavner, Brad
GRAZ-3, REC-2
Heck, Larry
Heckenlively, Lee
GEN-1
Hegger, Petra
ACC-1, 5, WSA-2
Heil, Kevin
Heil, Robert
ACC-1
Heil, Rosemary
ACC-1, 12, LAND-1, REC-2
Heilpern, Slim
ACC-5, 10, WSA-2

Heinsburger, Matthew
ACC-1
Heinsman, Beverly and Robert
Heisman, Angela
GEN-13
Heiss, Max
Helgie, Tonya
ACC-1
Hellwig, Chris
ACC-10, GRAZ-3, 5, REC-2, WSA-3
Hellyard, Paul
Helton, Ralph
Hemingway, Dezi
GRAZ-3, REC-2
Hemingway, Jim
Hemson, Michael
Henderson, Bill
ACC-2
Henderson, Carolyn
REC-8
Henderson, DeAnna
ACC-2
Henderson, DeWitt
ACC-13, GEN-1, GRAZ-3
Henderson, Karen
ACC-2, GEN-13
Henderson, Rick
Hendrickson, Mark
Henert, Max
Henrickson, Margaret
ACC-1, GEN-22, REC-2, WSA-3
Henrie, Thor
Henrikson, Susan and Carl
REC-2
Henry, Jim
Henry, Bob Jr.
ACC-1, GRAZ-5, LAND-1, REC-2,
WSR-1
Hensel, David
GEN-1, GRAZ-3, LAND-1, REC-2,
WSA-2, WSR-1
Hensley, L and P
REC-8
Henson, Stein
Heppler, Julee
Herbert, Jerry

259

Herdliska, Robert
ACC-1; GEN-1, 5; GRAZ-1
Herman, Eugene
ACC-1; GEN-23; GRAZ-5; LAND-1; REC-2; WSR-1; WSA-3
Herman, John
ACC-3; GRAZ-3; WSA-1
Herman, Max
ACC-1
Hermann, Matthew
ACC-1; GRAZ-3; REC-2
Herr, Brian
Herrick, Shelly
Hertzberg, Scott
ACC-1; REC-2
Hess, Jimmy
Hester, John
Hetrick, Elizabeth
ACC-1; GRAZ-5; REC-2; WSA-3
Heydt, Nathan
ACC-1; GRAZ-5; REC-2; WSA-3
Heyer, Raymond
ACC-1; REC-2
Hicken, Beckey
Hicken, James
Hicken, Kerry
Hickman, Greg and MaryAnn
GRAZ-3
Hickok, Brian
GRAZ-3; REC-2
Hicks, Caroline
GRAZ-3; REC-2; WSA-3
Higgins, Scott
ACC-13; GEN-1; GRAZ-3
Higgins, Tracy
ACC-13; GEN-1; GRAZ-3
Hiipakka, Dennis
Hildabrand, Rick
GEN-5; GRAZ-3; REC-2, 10
Hill, DeMont
Hill, Gese
Hill, Greg
ACC-1; GRAZ-5; REC-2; WSA-3
Hill, Janaloo
REC-8
Hill, Ken
ACC-2
Hiller, Kim
GRAZ-5; REC-2
Hillisrd, Edward
GRAZ-5; REC-2
Hills, B
Hillson, Nyle
ACC-9, 14, 15, 16; WSA-3
Hilton, Glade
Hilton, David Jr.
Hilton, David Sr.
Himebaugh, Glenn
GRAZ-3; REC-2
Hinchey, Maurice
ACC-1; LAND-1; REC-1; WSR-1
Hines, Cynthia
GRAZ-5; REC-2; WSA-3
Hingson, Dick
ACC-10; GEN-5, 22; WSA-2
Hinkelman, Carol
GRAZ-3; REC-2; WSA-2; WSR-1
Hinkins, Todd
Hinote, Melodie
ACC-2; GEN-13; GRAZ-3, 5; LAND-1
Hinote, Robert
ACC-2; GEN-13; GRAZ-3, 5; LAND-1
Hintze, Darrel
Hinize, Jack
Hintze, Jason
Hintze, Larry
Hirschi, Dennis
Hirst, Wayne
WSA-3
Hiser, Eric
ACC-1; GRAZ-1, 3, 5
Hobbs, A
BIO-4; GEN-1; GRAZ-3; LAND-1; REC-1; WSA-3; WSR-1
Hobbs, Amy
GEN-1; GRAZ-3; REC-2; WSA-3
Hodgkins, T.B.
ACC-10
Hodous, Douglas and Janet
GEN-1; WSA-2
Hoenig, Eileen
GRAZ-3; REC-2
Hoffman, Paul
Hoffman, Richard
GRAZ-3; WSA-3
Hoffman, Ross
REC-2
Hoffman, Ted
REC-2
Hoffman, William
GRAZ-1; REC-2
Hofftsen, Michael
Hogan, Michael
Hohenlohe, Paul
ACC-1
Hohmann, Russell
ACC-2
GRAZ-5; REC-2
Holak, Andy
ACC-1; GRAZ-5; REC-2; WSA-3
Holbrook, Stephen
Holcomb, Katherine
Holcomb, Mike
Holiday, Wayne
Holland, John
ACC-1, 8
Holland, Kathleen
Holland, Roger
Hollander, Milton
Hollberg, Steven
Holley, Buddy
Holley, Carole
GRAZ-5; REC-2
Holley, Frank
ACC-10
Hollister, Dashiell
Hollister, Karen
Hollows, Duane and Ruth
ACC-2; GEN-13, 15; GRAZ-5
Holmes, Marlee and Dick
REC-1, 4
Holmes, Stanley
GEN-1; WSA-3
Holms, Richard and Marlee
REC-1, 4
Holt, Ann
REC-2
Holt, Jan
ACC-1; GRAZ-3; REC-2
Holt, Jason
ACC-1; GRAZ-5; REC-2; WSA-3
Holt, Sydney
Holton, Jill
GRAZ-5; REC-2
Holton, Jody
Homes, Mike
BIO-1; GEN-5; GRAZ-3; REC-2; WSA-3
Honer, Carolyn
Honey, Bruce
Hood, James
ACC-1; GRAZ-5; REC-2; WSA-3
Hook, C.
ACC-2; GEN-13; GRAZ-5
Hook, Lindsay
ACC-2; GEN-13; GRAZ-5
Hook, Lois
ACC-2; GEN-13; GRAZ-5
Hook, Penny
REC-8
Hooley, Roland
Hooper, Bret
GRAZ-3; REC-2
Hooper, John
ACC-1; GEN-1; REC-2; WSR-1
Hoopes, Greg
ACC-10
Hopkins, Fred
Hopkins, Ted and Arlene
GEN-5; REC-2
Hopper, Kay
Hoppes, Greg
Hoppus, Mike
ACC-1; GRAZ-1, 3, 5
Hopwood, Doug
Horgan, Chris
Horn, Ronald
ACC-1; GRAZ-3; REC-2
Horne, Susan
REC-8
Horniog, Wayne
Hornyak, Jean
GEN-1, 5; REC-1
Horowitz, Tina
ACC-13; GEN-1; GRAZ-3
Horrocks, Garwin

Horrocks, Ronnie
Horrocks, Trevor
Horton, Paul
Horvitz, Bill
ACC-1, 5; REC-1
Hoskisson, Paul
GEN-1, 22; WSA-3
Hossell, Annabel
Hough, Manny
REC-8
Houghton, Chad
Houghton, David
Houghton, Jack
Housekeeper, Theora
Houser, Debra
REC-1
Houston, Dain
Hovingh, Peter
BIO-1, 2, 3; GEN-8; GRAZ-5; REC-8;
WAT-2
Howard, Gerald
Howard, Harry
Howard, John
Howard, William
Howe, Eric
ACC-1; GRAZ-5; REC-2; WSA-3
Howe, Gordon
ACC-1
Howell, Harold
REC-2
Howells, David
REC-1
Howells, James
WSA-1
Howells, Mary E. M.
Howsden, Freddie and Carolyn
Hoyer, Eric
ACC-1; GRAZ-5; REC-2; WSA-3
Hoyt, Caren
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Hoyt, Wendell and Nellie
Hubbard, Gayle
Hubbard, Rick
ACC-2
Hubbard, Robert
ACC-1, 12
Hubbard, Robert

Hudson, Rick
REC-2
Huerta, Juanita
Huet, Douglas
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSR-1
Huff, Blake
Huff, Delmar
Huff, Alan
Huffman, Becky
REC-8
Huffman, C
Huffman, Ray
Hugenioh, Mark
Huggard, Dan
Huggard, Jamie
Huggart, M
Hughes, Bill
GEN-1; REC-2
Hughes, Bill
GEN-1; REC-2
Hughes, Debra
ACC-10; GEN-16
Hughes, Joseph
ACC-12, 17; ACC-2; BIO-5; GEN-13;
LAND-1
Hughes, Keith
Hughes, Kristine
Hughes, Violet
ACC-12; BIO-5; GEN-13; LAND-1
Hughs, Joshua
ACC-1; GRAZ-5; REC-2; WSA-3
Hugie, Terry
Huhe, Robert
Hule,n Darvis
ACC-13; GEN-1; GRAZ-3
Hulet, Daniel
ACC-7; GEN-40; WAT-4; WSR-3
Hullinger, Dennis
Huls, Jeff
Hultquist, Arne
ACC-3; GEN-11; GRAZ-3, 5; WAT-5,
6
Humpheys, Brent
ACC-13; GEN-1; GRAZ-3
Humphreys, Michael and JanACC-1;
GRAZ-5; LAND-1; REC-2; WSR-1

Huner, Jerry
Hungiker, Peggy
Hunnel, David and Heather
ACC-2
Hunsaker, William
Hunt, Alden
Hunt, Andrew
Hunt, Bruce
Hunt, George
GRAZ-1
Hunt, Gerald
Hunt, Gorden
Hunt, Stan
Hunt, Stephen
Hunt, Ty
Hunter, Brad
ACC-2; GEN-13, 15; GRAZ-5
Hunter, Brent
Hunter, Gloria
Hunter, Lance
Huntington, G.
Huntington, Lowell
GEN-1
Huntsman, Casey
Huntsman, Dan
Huntsman, J.
Hupp, Chet and Teri
Hurley, Robert
ACC-10
Hussey, Dixon
Hutchinson, Derek
GRAZ-3; REC-2
Huthingson, Phillip
Hyman, Ruth
GRAZ-5; REC-2; WSA-3
Iabors, Ctristian
Imlay, K.
Imlay, Valerie
Imus Family
Inaba, Nancy
GRAZ-1
Inberg, Carol
Ingalls, Bill
GRAZ-3; REC-2
Ingalls, Libby
ACC-1; GEN-1; GRAZ-3; WSA-2

Ingman, Alan
ACC-13; GEN-1; GRAZ-3
Ingraham, Blake
GRAZ-3; REC-2; WSA-2
Ingram, James
Irwin, Maria
ACC-1; GRAZ-5; REC-2; WSA-3
Israelsen, Dee
Isreal, Douglas
GRAZ-3
Iverson, Deborah
Iverson, Robert
Ive,s Catherine
Ivins, Jason
Iwerks, Larry
BIO-1; GEN-1; GRAZ-1; REC-2
Jack, Kerin
Jackson, Bruce
GRAZ-3; REC-2
Jackson, Roger
Jackson, Thomas and Marilyn
GEN-2, 9, 13, 25, 36; REC-1, 8
Jacob, Chris
Jacobel, Robert
GRAZ-3; REC-2; WSA-2
Jacobs, Bart
Jacobs, Chris
GRAZ-3, 5; REC-2
Jacobs, Hugh
Jacobs, Lynn
ACC-1; GRAZ-1, 3, 5
Jacobsen, Jarvis
Jacobsen, Karon
ACC-12
Jacobson, Chad
Jacobson, Danial
Jacobson, Robert
Jagiella, Tom
Jahn, Greg
GEN-1
James, Tom
Jankord, Mary Ann
GEN-1, 5, 11; GRAZ-3; LAND-1;
WSR-1
Jansen, Ron

Jensen, Delmar
ACC-10; GEN-1; GRAZ-3; LAND-2;
REC-2; WSA-2
Jarman, Tom
ACC-2; GEN-13, 15; GRAZ-5
Jarrett, Alan
ACC-1; GEN-1
Jarrett, Glen
Jason, Shane
Jaspering, Glenn
Jausi, Andrea and David
GEN-1, 22
Jayne, Jerry
ACC-1, 10; GEN-1; REC-2; WSA-1
Jeffery, Alfred
Jeffs, Jerry
Jeffs, Rick
GRAZ-3; REC-2
Jenkins, Doug
ACC-2
Jenkins, Mark
ACC-10
Jenkins, Thomas
Jenkins, Wendy
Jennings, Bob
ACC-10
Jennings, Linda
ACC-13; GEN-1; GRAZ-3
Jensen, Brian
Jensen, Carl
Jensen, Carol
ACC-2
Jensen, Christine
Jensen, Clark
Jensen, David
Jensen, Dennis
Jensen, Jerold
Jensen, John
Jensen, Jonathan
ACC-1; GEN-1; GRAZ-3; REC-2
Jensen, June
Jensen, Justin
Jensen, Kendal
Jensen, Lars
ACC-1, 10; GRAZ-1; REC-2; WAT-4
Jensen, Lena
Jensen, Louise
Jensen, Mark
Jensen, Ned
Jensen, Patrick
Jensen, Paul
Jensen, Payne
Jensen, Ray
Jensen, Scott
Jenson, Emilie
Jenson, Jodi
Jenson, Randy
ACC-2; GEN-13, 15; GRAZ-5
Jenson, Theron
Jerard, Al
Jessup, Richard
ACC-2; GEN-1, 13; GRAZ-5, WSR-3
Jessup, George
GEN-16
Jettmar, Karen
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2; WSA-2, 3
Jewell, Michael
Jewett, Rick
Jinkes, Kevin
ACC-10
Jinkin, Kim
Jio, Marilyn
ACC-5; GEN-1, 5
Johansen, JoAnn
Johns, Clyde
Joimsen, Randall
Johnson, A
Johnson, Ann
ACC-1
Johnson, Barbara
GRAZ-5
Johnson, Carol
BIO-1; GRAZ-5; REC-2, 10
Johnson, Clara
Johnson, Clay
Johnson, Cyle
GEN-15
Johnson, Denny
Johnson, David
ACC-1; GEN-12, 22, WSR-6
Johnson, Don
ACC-13; GEN-1; GRAZ-3
Johnson, Elizabeth
GRAZ-1; REC-2
Johnson, Eric
GRAZ-3; REC-2
Johnson, Floyd
Johnson, Fred
ACC-2; BIO-4; REC-8
Johnson, Georgia
ACC-2
Johnson, Gerald
GEN-1; REC-2
Johnson, Gerald
Johnson, Glendon
Johnson, Gordon
Johnson, Grant
ACC-8
Johnson, Hank
Johnson, James
Johnson, Janet
REC-8
Johnson, Jaspen
ACC-13; GEN-1; GRAZ-3
Johnson, Jeff
Johnson, Jeffrey
Johnson, John
GRAZ-1; REC-2; WSA-3
Johnson, J Leo
Johnson, Ken
ACC-7, 10; WSA-3
Johnson, Kevin
Johnson, Kim
ACC-10; GRAZ-1; REC-2; LAND-1
Johnson, Kim
Johnson, Kirk
ACC-1; GRAZ-5; REC-2; WSA-3
Johnson, Larry
Johnson, Laverna
Johnson, Mary
REC-2
Johnson, Matthew
ACC-1; GEN-1; REC-2; WSA-3;
WSR-1
Johnson, Michael
Johnson, Michelle
Johnson, Mike
GEN-1; GRAZ-3; REC-2; WSA-3
Johnson, Moyle
ACC-5
Johnson, Mr. and Mrs. Richard
Johnson, N.
GEN-5; WAT-4; WSA-3
Johnson, Paul
ACC-1, 5; GEN-5; WSA-2
Johnson, Phillip
Johnson, Richard
REC-8
Johnson, Rick
Johnson, Rick
Johnson, Robert
GEN-1; GRAZ-3; REC-2; WSA-2
Johnson, Rodger
Johnson, Ronald
REC-2
Johnson, Shauna
ACC-2; REC-8
Johnson, Thomas
ACC-1; GEN-1, 22; LAND-1
Johnson, Tim
Johnson, Tim
ACC-1, 13; GEN-1, 23; GRAZ-3, 5;
LAND-1; REC-2; WSR-1
Johnson, Troy
GEN-13; GRAZ-3
Johnson, Victor
Johnson, Virginia
Johnson, Aubrey Jr.
ACC-1; GRAZ-1; REC-2
Jolin, Marc
ACC-13; GEN-1; GRAZ-3
Jolley, Evan
Jolly, David
Jonath, Paul
Jones, Allen
Jones, Andrew
GRAZ-1; REC-2; WSA-3
Jones, Andy
ACC-2; GEN-1; REC-2
Jones, B.
Jones, Bob
Jones, Bob and Yvonne
ACC-13; GEN-1; GRAZ-3
Jones, Carolyn

Jones, Christopher
ACC-3; GRAZ-3, 5; REC-12
Jones, David
REC-2
Jones, DeWitt
Jones, Don
Jones, Eric
ACC-1; GRAZ-5; REC-2; WSA-3
Jones, Frances
Jones, Justin
ACC-1
Jones, Kalen
GEN-1; GRAZ-3; REC-2; WSA-2
Jones, Karen
Jones, Kathi
Jones, Kenneth
Jones, Kirtly
ACC-3; GRAZ-3, 5
Jones, Lynette
Jones, Michael
Jones, Patrick
Jones, R. D.
Jones, R. Merrill
Jones, Rob
ACC-4, 10; GEN-1, 2; GRAZ-3;
REC-2; WAT-4;
WSA-2; WSR-1
Jones, Rob
ACC-1; GEN-1; GRAZ-3; REC-2, 3;
WAT-4; WSA-2
Jones, Robert
ACC-1, 10; GEN-1; GRAZ-3; REC-2;
WAT-4; WSA-2
Jones, Robert
Jones, Ronald
Jones, Sam and Mary
Jones, Scot
Jones, Stephan
Jones, Stephen
GRAZ-1; REC-2
Jones, Stuart
Jones, Susan
GEN-1, 5; REC-1; WSA-2, 3
Jones, Tanya
Jones, Tommy
Jones, Travis
Jones, Virginia
Jones, Wayne
Jones, Weston
Jonsson, Valgard
GRAZ-1, 3; REC-2
Jopling, Blake
GRAZ-5; REC-2
Jordan, Annette
REC-8
Jordan, Robert
ACC-1; GEN-1; REC-2
Jordan, Robert Jr.
ACC-1; GEN-1; GRAZ-3; REC-2
Jorgensen, Brett
Joseph, Alan
GRAZ-1; REC-2
Joseph, Jennifer
Joury, Caren
REC-1
Joslyn, Linda
Jesperson, George
Joss, Murray
Ju, Scott
Judd, Keith and Carol
Judd, Martin
GRAZ-3; WAT-4; WSA-1
Judd, Ora Nell
ACC-2; GEN-1; GRAZ-5
Judd, Rulon
Judd, Vaughn
GEN-13; GRAZ-5
Judd, W. Dart
Jump, Robert
Junkin, James
Kaas, Leslie
ACC-5; GEN-5; WSA-2
Kaczrowka, Bob
Kahn, Jeffrey
Kalinowski, Arlene
GRAZ-5; LAND-1; REC-2; WSR-1
Kalinowski, Joseph
GRAZ-5; LAND-1; REC-2; WSR-1
Kalkbrenner, Lee
Kalleah, Sis
ACC-2
Kallman, Glenda
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSR-1
Kalmbach, Gregory
GEN-1, 5
Kalt, Nick
GRAZ-5; REC-2
Kaminski, John
GRAZ-3; REC-2
Kan, Gary
Kane, Jeffrey
ACC-1, 10; GEN-1; GRAZ-1;
LAND-1; REC-2; WSA-3; WSR-1
Kantor, Stanley
Kapover, Emmy
REC-8
Kapp, Melissa
Karl, Kevin
GRAZ-3; LAND-1; REC-2
Karnia, Judy
GRAZ-5; REC-2
Karns, Mathew
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Kauffman, Steve
GRAZ-1, 3; REC-2
Kaufman, Elinore
ACC-4, 10; GEN-1; GRAZ-3;
LAND-1; REC-2; WSA-2; WSR-1
Kavanaugh, Jim
ACC-13; GEN-1; GRAZ-3
Kawa, Wendi
Kay, Glendon
Kay, James
ACC-1; GEN-3; REC-2
Kazlow, Lauren
ACC-1; GRAZ-5; REC-2; WSA-3
Keate, K. Brent
REC-2
Keele, Bonnie
Keele, Dan
GEN-16
Keesling, Maxine
Kefalas, John
GRAZ-3; REC-2
Keilty, Maureen
GRAZ-3; REC-2
Keim, Susan
ACC-1; GRAZ-5; LAND-1; REC-2;
WSA-3; WSR-1
Keller, Jeff
ACC-1; GRAZ-1, 3, 5
Keller, Randall
GEN-5; REC-1
Keller, Ronald
Kellermann, Stephen
Kelley, Jill
ACC-1; GRAZ-5; REC-2; WSA-3
Kelley, Kathleen
GRAZ-5; REC-2
Kelley, Paul
Kellogg, Elizabeth
WAT-4; WSA-2
Kellogg, L.
WAT-4; WSA-3
Kelly, Ann
GEN-1
Kelly, Dana
GRAZ-3
Kelly, George
Kelly, Joan
REC-2
Kelly, Phillip Jr.
GRAZ-3; REC-2
Kelly, Wayne
GRAZ-3; REC-2; WSA-2, 3
Kemp, Michael
ACC-10; WSA-3
Kemp, Susan
Kendall, Vaughn
GEN-1; WSR-1
Kenison, Deborah
ACC-1; GRAZ-3, 5; WSA-3
Kennedy, Anne
REC-8
Kennedy, Dennis
ACC-2
Kennedy, Richard
GRAZ-3; REC-2
Kennell, Marsha
ACC-1, 10; GEN-1; GRAZ-3;
LAND-1; REC-2; WSA-2; WSR-1
Kenney, Mike
Kennicott, Carol
ACC-2
Kennicott, Philip
ACC-2

Kenny, Gail
GRAZ-3; WSA-2
Kenny, Ray
REC-2
Kent, Tim
Kerley, Jay
GRAZ-1; REC-2
Kern, Linda and Robert
Kerns, Becky
GRAZ-3; REC-12
Kertesz, Johanna
GRAZ-3
Kesler, Gale
Kessler, Bob
GEN-5; REC-1
Kester, Kelly
Kestler, Alean
Ketchner, Tristen
Key, Bill
Keys, John
Keys, Paul
ACC-13; GEN-1; GRAZ-3
Kidd, Barron
GEN-7, 8, 22
Kiecker, Alan
ACC-7, 12
Kilb, Harry
Kilmer, K
ACC-13; GEN-1; GRAZ-3
Kilmer, Kathy
GEN-1; GRAZ-3; REC-2; WSR-1
Kimball, Nancy
REC-1, 8
Kindred, Lee
King, Allen
REC-1
King, D
King, George
GEN-1; GRAZ-3; REC-2; WSR-1
King, James
King, Jeremy
ACC-1; BIO-1; GEN-5; GRAZ-5
King, Morris
Kingston, Mark
Kirby, Angela
GRAZ-3; REC-2

Kirk, Jeffrey
ACC-1; GRAZ-5; REC-2; WSA-3
Kirker, Donald
ACC-13; GEN-1; GRAZ-3
Kirkwood, Jeff
Kirkwood, Kenneth
ACC-10
Kirsch, Vicki
Kisling, Scott
GRAZ-3; REC-2
Kissell, Fred
REC-2
Kitson, Judy
Kiver, Eugene
GEN-1; REC-2; WSA-2; WSR-4
Kizer, Ken and Lori
LAND-1; REC-2
Klaasen, Larry
ACC-1
Klein, Martin
ACC-5; BIO-4; REC-1, 8
Klein, Thomas
ACC-1; GRAZ-5; REC-2; WSA-3
Kleinman, Jeanne
Kline, L. G.
REC-1
Klingener, Elyse
GEN-1; GRAZ-3; REC-2
Klock, Don
Klock, Nancy
ACC-13; GEN-1; GRAZ-3
Klyfmstein, Ted
Knight, Mitzi
Knoales, G.
Knorr, Michael
ACC-5
Knowles, Jeff
Knudsen, Anna
ACC-5; WSA-2
Kobe, Kevin
Koedoot, Joel
ACC-5; GEN-5; REC-2; WSA-2
Koeppel, Eric
GEN-1, 5
Kofahl, Nathan
Kofford, Gary
Kohlstedt, B. J.

Kolanski, Kristin
LAND-1; REC-2
Kolosseus, Andrew
GRAZ-3
Kondrlis, Michael
Koper, Teresa
ACC-5; REC-1
Kopp, Kenyon
Korthage, David
ACC-10; REC-2; WSA-3
Kornblet, Ben
GRAZ-1
Koslen, Danya
GEN-1, 22
Kost, Chris
ACC-1; GRAZ-5; REC-2; WSA-3
Kowallis, Bart
ACC-6; REC-1
Koyle, Curtis
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Koyle, Marcia
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Kraai, Albert
ACC-1; GRAZ-5; REC-2; WSA-3
Krakoff, Sarah
WSA-2
Kramer, Kerry
GRAZ-3; REC-2; WSA-2
Kramer, Kenyon M.D.
Kranzler, Rod
ACC-1; GEN-1, 5
Krasik, Natallie
ACC-13; GEN-1; GRAZ-3
Krause, Sarah
ACC-1; GRAZ-3
Krauss, Kathleen
GRAZ-3; WSA-2
Krefting, Steven
ACC-1, 10; GEN-1; GRAZ-3; WSA-3;
WSR-1
Kreidel, Joe
GRAZ-5; REC-2; WSA-2
Kreider, Larry
Kremer, Eugene
ACC-10, WSA-2

Kremer, Mark
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Krema, Mark
Kresge, Gerald
ACC-5; WSA-2
Krils, Gail
Krisanoff, William, M.D.
ACC-1
Krause, Kitty
WSA-3
Krueger, Jay
ACC-1; GRAZ-5; REC-2; WSA-3
Krueger, Michelle
Krueger, Richard
WSA-2
Krupp, Catharine
GEN-5
Kuball, Bud
GRAZ-1; REC-2
Kubisiak, John
GEN-1; GRAZ-3; REC-2
Kuehl, Barbara
REC-2; WSR-6
Kuehl, LeRoy
GRAZ-5; REC-2
Kufe, Kim and David
ACC-2, 9, 15; GEN-7, 13, 39
Kuhn, Dianna
Kuhn, Jeanine
ACC-1; GEN-1, 22; GRAZ-3; REC-2;
WAT-4; WSA-2
Kuhn, Lisa
GEN-1, 22
Kuhnel, Ron
GEN-5; REC-1; WSA-2
Kuhns, William
ACC-10
Kulatilake, Siranjan
ACC-13; GEN-1; GRAZ-3
Kummer, Bob
ACC-13; GEN-1; GRAZ-3
Kuntz, William
Kurtz, Barbara
ACC-13; GEN-1; GRAZ-3; REC-2;
WSR-1

Kurtz, Jason
ACC-13; GEN-1; GRAZ-3
Kurz, Jennifer
GRAZ-1; REC-2
Kutz, Julie
ACC-1; GEN-1; GRAZ-1, 3; WAT-4;
WSA-2
Kuykendall, Sheri
REC-8
Kwiecien, Jim
Labell, Mike
LaBarou, Brock
GEN-11
Laben, Kimberly
Labourie, Eric
LaBoyteaux, III John
GEN-1; GRAZ-3; REC-2; WSA-2
Labut, Martin
Ladd, Gary
Ladino, Jennifer
ACC-1; GEN-1, 5
LaFevere, Kurt
Laffin, Marion
GRAZ-3
LaFrambroise, Greg
GEN-5; REC-1; WSA-2
Lagergren, Henry
GRAZ-3
Lahn, Roger
ACC-1; GEN-1
Laird, Andrew
ACC-1; GEN-1, 22
Lakas, Julie
GRAZ-3; REC-2; WSA-2
Lake, James
Lake, S.
Lakso, John
REC-8
Lam, Howie
LaMar, George
GEN-16
Lamb, Alex
ACC-5; GEN-1, 13, 16; GRAZ-5;
REC-1
Lamb, Chaurill
ACC-5; GEN-1, 13, 16; GRAZ-5;
REC-1
Lamb, Sandy
REC-1, 3
Lamberger, Paul
ACC-1; GRAZ-3; REC-2
Lambert, Mark
GEN-1, 5
Lambert, Mary
GRAZ-1; REC-2
Lamborn, Burt
Lamborn, Ed
Lambrechtse, Rudolf
ACC-1; GEN-1, 22; LAND-1; WSA-2;
WSR-6
Lamm, Ken and Dorothy
ACC-1; GEN-1, 5
Lamson, Glenn
Lanaserkamd, Bob
ACC-5; WSA-2
Lancaster, Layne
Lancaster, Sharon
Land, Tracy
REC-1
Landers, Glenn
ACC-10; GRAZ-3, 5; REC-2; WSA-3
Landretti, John
Landry, Arlene
ACC-1; GEN-11; REC-8
Lane, Alan
Lane, Arnold and Barbara
Lane, Earl
GEN-1; GRAZ-3; REC-2; WSR-1
Lane, Earl
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1; REC-2; WSA-1; WSR-1
Lane, Robert
Lane, Vicky
Long Pat
Langston, Sherolyn
ACC-12; GEN-13
Lanza, Michael
GEN-1; REC-2
LaPlume, Jeff
GRAZ-3; REC-2
LaPorte, Cherrie
REC-1, 8
LaPorte, Mary
REC-1, 8
Larkin, Michael
ACC-1; GRAZ-1, 3, 5
Larkin, Steve
ACC-7, 18, 24; GEN-11, 12; REC-1,
16, 19; WSR-3
LaRoche, Grant
GRAZ-3; REC-2
Larrabee, Edward
BIO-1; GEN-5; GRAZ-5; REC-2
Larrabee, Holly
ACC-2
Larrabee, Jessica
ACC-2
Larrabee, Julie
Larrabee, Steve
ACC-2
Larsen, Byron
ACC-5; GEN-1
Larsen, Curtis
Larsen, Dennis
ACC-1; GRAZ-3; REC-2
Larsen, Franz and Patty
ACC-10
Larsen, Gary
Larsen, Helen
ACC-2; GEN-9
Larsen, Jerry
Larsen, Kent
Larsen, Neil
Larsen, Nils
ACC-1; GEN-1, 22; GRAZ-3; REC-2
Larsen, Randy
Larsen, Rebecca
GEN-22
Larsen, Ronald
ACC-1, 5; GEN-1; GRAZ-3; REC-1, 2
Larson, Craig
GRAZ-5; REC-2
Larson, Darren
GEN-5; REC-1
Larson, Howard
Larson, Keith
Larson, Kris
ACC-10; REC-2
Larson, Myq
Larson, Samuel
Larsson, G. Scott
Larte, William
Lasorn, Michael and Wanda
Lauer, Gregg
GRAZ-3; REC-2
Laufer, Ray
ACC-1; GRAZ-1; LAND-1; REC-2
Laughlin, Shawn
Laurm, Alie
ACC-1; GRAZ-5; REC-2; WSA-3
Lavagnino Remo
ACC-10; REC-2
Lavery, Daniel
GRAZ-3
Law, Wesley
Lawrence-Skans, Melanie
REC-8
Lawson, Brian
ACC-1; GRAZ-5; REC-2; WSA-3
Lawson, Doris
GEN-23
Lazar, Daniel
GRAZ-3; REC-2; WSA-3
Lay, Darwin
Leach, Dallin
ACC-18; GEN-1, 13
Leach, Dustin
ACC-18; GEN-1, 13
Leach, Ila
ACC-18; GEN-1, 13
Leach, Ken
ACC-18; GEN-13
Leach, Nicky
ACC-5; GEN-5; WSA-2
Leach, Robert
ACC-18
Leach, Robert
GEN-1, 13
Leach, Travis
ACC-18; GEN-1, 13
Leach, Trevor
ACC-18; GEN-1, 13
Leach, Trevor
GEN-1, 13
Leachman, Mark
ACC-10; REC-2
Leastead, John
Leavitt, Larry

258

BEST COPY AVAILABLE

Leavitt, Arnold
Leavitt, Paul
Leavitt, Richard
Leavitt, Steve
Lebeouf, Armand
GRAZ-5; REC-2
LeDuc, Michael
Lee, Gayle
Lee, Gwendolyn
BIO-1; GEN-1
Lee, John
GRAZ-1; REC-2
Lee, Kipp
GRAZ-3; REC-2
Lee, Lean
Lee, Russell
LeFevre, Barbie
LeFevre, Dell
ACC-5; GEN-1, 13; GRAZ-5; REC-1
LeFevre, Leslie
LeFevre, John
LeFevre, Reed
GEN-9
Leffler, Susan
GEN-7; GRAZ-1
Legel, Pat
GRAZ-3; REC-2
Legendre, Thomas
GRAZ-3; REC-2
Lehmann, David Jr.
Lehr, David
Lehrman, Leslie
ACC-1; GRAZ-5; REC-2; WSA-3
Leigh, Blade
Leister, Leslie
GRAZ-7; REC-2; WSA-3
Leitch, Earl
Lemke, Charles
Lemke, Melvin
Lemon, Ronald
Lenz, Michael
Lenz, Dennis
ACC-1; GRAZ-5; LAND-1; REC-2;
WSB-1
Leonard, Hal
Leondires, Mark
GEN-1

Lerner, Patti
ACC-1; GEN-5; GRAZ-1
Leston, Paul
Lewandee, John
ACC-1, 10, 13; GEN-1; GRAZ-3;
LAND-1; WSA-2; WSB-1
Leutwyler, Glenda
REC-1, 8
Levering, Ed
REC-2
Levin, Ross
ACC-1; BIO-1; GEN-5; REC-2;
WSA-2
Levin, Steve
ACC-10; GRAZ-3; REC-2; WSA-2
Levine, Eliese
ACC-13; GEN-1; GRAZ-3
Levine, Ronald
Levy, Madelyn and Richard
GEN-1, 22; WSA-2
Levy, Norm
REC-1, 4
Lewin, Phillip
ACC-1, 10; GRAZ-3; REC-2
Lewis, James
ACC-1; GEN-1; GRAZ-3; WSA-1;
WSB-1
Lewis, Lance
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Lewis, Luann
Lewis, Marjorie
ACC-1
Lewis, Sam
Lewis, Shawn
Lewis, Stephen
GRAZ-3
Leydsman, E. Kim
Lezotte, Janelle
Libengood, Ann
ACC-2
Licciardi, Yvonne
ACC-1
Lichtenstein, Gary
ACC-1; GEN-5
Lieben, Dave
Lieberman, Joan
Liechty, Doug

Lien, David
ACC-13; GEN-1; GRAZ-3
Lightburn, Robert and Anne
ACC-1, 10; GRAZ-3
Lilback, Kenneth
ACC-13; GEN-1; GRAZ-3
Lillywhite, Matthew
Limbert, Pat
Lindberg, Rebekah
BIO-1; GEN-5; GRAZ-5; REC-2, 10
Lindell, Dorothy
REC-8
Lindquist, Andy
REC-1, 2
Linderman, Curtis
ACC-13; GEN-1; GRAZ-3
Lindmark, Sid
GEN-5; REC-2; WSA-2
Lindon, Matthew
Lindsay, Dee
Lindsey, J. Page
ACC-1, 5; REC-1
Linford, Duane
Linford, Fred
Ling-Mullins, Katherine
Linton, Ronald
Linwill, Rick
Lipman, James
GRAZ-3; REC-2
Lipmanson, Don and Joy
GRAZ-3; REC-2
Lippard, Chris
ACC-5; GEN-5; WSA-2
Lippert, John
GRAZ-1; REC-2
Lippman, Steve
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2; WSA-3; WSB-1
Lips, Chale
Lissom, Linda
GRAZ-3
Lisiewski, Christine
ACC-1; GEN-1; GRAZ-3
Lister, Wayne Jr.
Littell, Todd
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSB-1

Little, Jamie
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Little, Karen
Little, Kenyon
ACC-2; GEN-1; GRAZ-3
Little, Lane
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Littlefield, S.
Livingston, Curt
GRAZ-3; REC-2
Lloyd, R.
Lloyd, Thomas
Locey, Mary
GEN-22
Locker, Eric, M.D., P.A.
GRAZ-3; REC-2
Locklear, Alan
GRAZ-3; REC-2; WSA-3
Loeb, David
GEN-1; WSA-2
Loeb, David
GEN-1; GEN-22; WSA-2
Loeb, Jason
ACC-1; GEN-1, 5
Loeb, Susanna
Loewman, Carolyn
REC-8
Lofton, Harry
GEN-5; REC-2
Loftus, Robert
Lohmeier, Henry
Lombardi, Johanna
ACC-1; GEN-1, 5, 22; WSA-2
London, Robert
GRAZ-3
Long, Bill
ACC-1
Long, David
Long, Ernie
ACC-1; GRAZ-3; REC-2
Long, John
GEN-1; GRAZ-3; REC-2
Long, Kathryne
Long, Randy
Long, Steven
Longson, Barbara

BEST COPY AVAILABLE

255

Loniak, Walter
GRAZ-3; REC-2
Loomis, Carol
ACC-1
Looser, Mark
Loosli, Joel
Lord, Lynwood
Lorence, Leonard
GEN-1; REC-1, 2
Lorton, Molly
GEN-5; REC-1
Loser, Tim
Lott, Anthony
GRAZ-5; REC-2; WSA-3
Louder, Betty
ACC-1
Louise, Kattiana
ACC-1; GRAZ-5; REC-2; WSA-3
Love, William
GEN-1; GRAZ-3; REC-2; WSA-3
Loveless, Bruce
Loveless, Greg
Loveless, Jesse
Low, Jeff
GEN-5; REC-1
Low, Susan
ACC-10
Lowery, Tom
ACC-2
Lowrance, David
ACC-1
Lucas, Kara
ACC-1; GRAZ-5; REC-2; WSA-3
Lucas, Laird
ACC-1; GRAZ-1, 3, 5
Lucas, Lawrence
ACC-13; GEN-1; GRAZ-3
Lucas, Mark
ACC-1; GEN-1, 5
Luccas, Beth
GEN-1, 5
Ludwig, Nephi
Luedecke, Alison
ACC-13; GEN-1; GRAZ-3
Lueders, Edward
ACC-10; GRAZ-5
Luke, Leora
Lukens, Paul
GRAZ-3; REC-2
Lukes, Rodney
Lund, Carolyn
Lund, Terry
Lundahl, Miles
ACC-1, 10; GRAZ-3; REC-2; WSA-3
Lundin, Aaron
Lunt, J. R.
GRAZ-3; REC-2
Lupetin, Guerino Jr.
GRAZ-5; LAND-1; REC-2; WSR-1
Lussier, Christine
ACC-1; GRAZ-5; REC-2; WSA-3
Lut, Drew
Luttrell, Mark
GEN-1; GRAZ-3; REC-2
Lutz, John
Lyman, Clisbee
Lyman, Larry
Lyman, Venice
Lyon, Gary
Lyon, Thomas
REC-2
Lyons, Daniel
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Lyons, Deborah
REC-8
Lyons, Laura
GRAZ-5; REC-2
Lyran, Willie
MacFarlane, Bruce
GRAZ-3; REC-2
Machara, Joe
ACC-1; GEN-1; GRAZ-1; REC-2;
WSR-1
Mack, Bobby and Carolyn
Mackelsprang, Roy
GEN-1
MacKenzie, Doug
GRAZ-5; REC-2
Mackey, John
MacLaggan, Andrew
ACC-13; GEN-1; GRAZ-3
MacLaren, Gary
MacNulty, Joy
MacRay, David
Madden, Cher
ACC-10
Maddox, John
Madsen, Chris
WSR-1
Madsen, Lee
ACC-10
Madsen, M
Maestors, Denis
Magleby, Kirk
Magnuson, Launie
Magnuson, Rulon
Maher, Lee
GEN-1; REC-2
Main, Steven
Mainland, Edward
ACC-10; GEN-1; GRAZ-3; LAND-1;
REC-2; WSR-1
Maino, Michael and Michaeline
REC-1
Maisonpierre, Michael
REC-2; WSA-2
Majewski, Glen
GRAZ-3; REC-2
Major, Lisa
ACC-1; GRAZ-5; REC-2; WSA-3
Majors, Alexa
ACC-5, 13; GEN-1; GRAZ-3; WSA-2
Makarick, Lori
ACC-13; GEN-1; GRAZ-3
Malavenda, Peter
Malen, Kari
ACC-1
Malkin, Catherine
GRAZ-3; REC-2
Malley, Christopher
Malone, William
REC-10
Maloney, Casey
Maloney, Ken and Julie
ACC-1; GRAZ-1; LAND-1; REC-2;
WSA-3
Manaster, Pat
GEN-1; GRAZ-1; WSR-1
Manger, Tiffany
GEN-1, 22
Mangour, Gary
Mangum, Dallas
Mangum, Joe
Mangum, Ron
Maninger, Sarah
WSA-2
Manning, Dan Jr.
Mansfield, Donald
Manskopf, Dirk
Manvel, Evan
ACC-1; WSA-1
Manymules, Jayson
ACC-9
Manzi, Aline
Manzo, Mitchell
ACC-1; GRAZ-5; REC-2; WSA-3
MaQuarrie, Marty
ACC-7
Marchun, Brian
Marcus, Barbara
REC-8
Marcus, Tom
Maree, Gary and Karla
ACC-13; GEN-1; GRAZ-3
Maret, Jack
GRAZ-3; REC-2
Marinelli, Barney
GEN-7; GRAZ-3; WSA-3
Mark, Linda
ACC-1; GEN-1, 5
Mark, Robert
GEN-1; WAT-4
Markeloff, Richard
GRAZ-5; REC-2
Marks, Richard
GRAZ-3; REC-2
Marlatt, Jeanne
WSA-2
Marler, Dewey
Marotta, Caroline
ACC-10; WAT-4; WSA-2
Marquardt, Steve
Marquis, Aleura
Marquis, Kaylee
Marquis, Pam
Marquis, Roberta
Marquis, Steve

Marham, Travis
Marsh, Wim
GRAZ-5; REC-2
Marshall, Gwen
ACC-1, 10; GRAZ-1; REC-2; WSA-3
Marshall, Jon
Marshall, Loren
ACC-10
Marshall, Michael
Martell, Craig
REC-1
Martin, Andrew
ACC-1
Martin, Ben
REC-2; WSA-3
Martin, Ben
GRAZ-3; REC-2
Martin, Bennett
Martin, Bill
Martin, Curtis
ACC-1
Martin, Diane
ACC-5
Martin, Dianne
REC-8
Martin, Jeffrey
GRAZ-3; REC-2
Martin, Mike
Martin, Paul
Martin, Reed
Martineau, Valerie
REC-8
Martinez, James
Martinez, Jason
ACC-2
Marvel, Jon
ACC-1; GRAZ-1, 3, 5
Maslin, Mindy
GRAZ-5; REC-2; WSA-3
Mason, Jeff
ACC-1
Mason, Marty
Massouh, Paula
GEN-1; LAND-1
Masters, Michael
GRAZ-3; REC-2
Masterson, Raymond
Masvr, David
ACC-1; GEN-1; WAT-4
Mathews, David
BIO-5, REC-1
Mathews, Dillon
REC-1
Mathews, Trent
Mathie, Gordon
ACC-10
Mathis, Allyson
GEN-1; WAT-4; WSA-3; WSR-1
Mathis, Ilse
REC-2
Mathis, Jeff
GRAZ-3; REC-2
Matson, Joan
Matsumoto, Sarah
ACC-10; WSA-2
Matthews, Christopher
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Matthews, Greg
Matthews, Jason
LAND-1; REC-2
Matthews, Jonathan
ACC-13; GEN-1; GRAZ-3
Matthews, Scott
Mattis, Michelle
ACC-13; GEN-1; GRAZ-3
Matula, Arthur
GRAZ-1; REC-2
Maugh, Colby
Maure, Frances
GEN-1, 5
Mauren, Charles
Maurer, Richard
ACC-1; GRAZ-1; LAND-1; REC-2
Maxwell, Cody and Carl
Maxwell, Richard
REC-8
May, Sharon
ACC-1; BIO-1; GEN-5; GRAZ-3;
REC-2
Maycok, Melanie
GRAZ-3
Mayer, Ken
GRAZ-1; REC-7
Mayers, Margaret
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Mayes, David
GRAZ-5; REC-2
Maynard, Paul
REC-8
McAfee, Mary and Chuck
GEN-1; GRAZ-3, 4; WSA-3
McAllister, Diane
ACC-18; GEN-1; GEN-13
McAllister, Evan
GEN-1; GRAZ-3; WSR-3, 4
McAllister, Keith
BIO-5; GEN-13
McAllister, Mark
McAllister, Ruby
ACC-10; GEN-22
McAllister, Theo
McAllister, Zena
McAnderews, Pat
REC-8
McArther, Douglas
McArthur, Jim and Angie
McBath, Andrew
ACC-1; GRAZ-5; REC-2; WSA-3
McBride, Michael
McBride, Rebecca
ACC-13; GEN-1; GRAZ-3
McBride, S.T.
McCallan, Norma
REC-2
McCann, Alan
GRAZ-5; LAND-1; REC-2; WSR-1
McCann, Gregory
ACC-13; GEN-1; GRAZ-3
McCann,-Sayles Alan
ACC-1; GEN-1; LAND-1; WSR-1
McCarley, Donald
McCart, Tracy
McCarthy, Craig
McCarthy, John
GRAZ-5; REC-2
McCarvill, William
ACC-1; GEN-1; GRAZ-1; LAND-2;
REC-8; WAT-2
McClatchie, William
ACC-2
McCleary, John
McCleave, Julie
ACC-13; GEN-1; GRAZ-3
McClellan, Danny
McClellan, H.
McClellan, Sandra
McClellan, Velyn
McClendon, Mike
ACC-2
McCloy, Marjorie
GRAZ-3; REC-2
McCloy, Marjorie
McClure, Dayna
ACC-5; WSA-2
McCollom, Jerome
ACC-1; GRAZ-5; REC-2; WSA-3
McCord, Marilyn
ACC-13; GEN-1; GRAZ-3
McCowan, Milo
McCowin, Jarred
McCoy, Elizabeth
WSA-3
McCoy, Gordon
McCoy, Jay
ACC-2
McCoy, Jeff
GRAZ-1
McCoy, Katherine and Michael
ACC-1, 10
McCoy, Ted
McCoy, Thomas
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1;
REC-2; WSR-1
McCracken, Neil
McCreary, Tom
ACC-5; GEN-2; GRAZ-3, 5
McCue, Frank
ACC-1; GEN-1; GRAZ-3; REC-1
McCue, Joyce
ACC-1; BIO-4; GRAZ-5
McCue, Patrick
ACC-1; GEN-1; GRAZ-3; LAND-1;
WSR-1
McCullogh, John
GRAZ-3; REC-2

McCullough, Claire
ACC-1; WSA-3; WSR-1
McCullough, Kathleen
BIO-4; GRAZ-3; REC-1, 8; WSA-3
McCullum, Jerry
ACC-1; GRAZ-5; REC-2; WSA-3
McDaniel, Larry
McDaniel, Melissa
GRAZ-5; REC-2
McDonald, Elizabeth
GRAZ-3; REC-2
McDonald, Faye
GRAZ-1; REC-2
McDonald, Hollie
McDonald, Larry
ACC-1
McDonald, S.
ACC-10
McDowell, Terry
McElhaney, Dustin
McElhaney, Richard
McElhaney, Sharon
McElrea, David
McFarland, Brett
McFarland, Donald and Winnie
ACC-2
McFarlane, Kurt
McFarlane, Sadie
McFetridge, Wayne
McGann, Donald
McGhee, Kate
GEN-22
McGlinsky, Al and Lee
ACC-1; GRAZ-1; REC-2
McGovern, Tim
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
McGrath, Jill
GRAZ-3; REC-2; WSA-3
McGregor, Martin
REC-2
McGuire, Matthew
ACC-1, 10; GEN-1; GRAZ-5;
LAND-1; REC-2 ;
WSA-1, 2; WSR-1
McGuire, Shanna
McHugh, Don

McIntire, Karen
ACC-10
McKay, Scott
ACC-1; LAND-1
McKee, Dar
McKee, Norman
BIO-1, 4; GEN-1; WAT-4
McKee, Robert
GRAZ-3; REC-2; WSA-3
McKeighen, Daniel
ACC-1; GRAZ-5; REC-2; WSA-3
McKenney, Glen
McKenzy, Mack
REC-1
McKhann, Margie
ACC-1; GRAZ-5
McKiman, David
GEN-11; REC-2; WSR-1
McKnight, Terry and Jana
McLain, Sue
REC-8
McLaughlin, Robert
ACC-1; GRAZ-1; REC-2; WSA-2;
WSR-1
McLean, Matt
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
McMenoman, Michael
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
McMichael, Malcolm
McMillen, Kevin
ACC-1; GRAZ-5; REC-2; WSA-3
McMillian, Laura
ACC-13; GEN-1; GRAZ-3
McMollough, Rayo
GEN-12, 22; WSR-6
McMurtry, Duane
McNabb Andrew
ACC-10; LAND-1; REC-2
McNair, Connie
GRAZ-3; REC-2
McNamara, Laura
McNeal, M
REC-1, 8
McNeece, Vivian
GEN-1; GRAZ-1; WSA-2

McNeil, Korlyn
REC-2
McNelis, Richard
REC-8
McNerd, James
McNabb, Alison
LAND-1; REC-2
McNulty, J.P.
GEN-5; REC-1; WSA-2
McNulty, Tim
WSA-2
Mcory, Ted
McPhail, Michael
ACC-10; GRAZ-3, 5; REC-2; WSA-3
McQuire, Matt
ACC-10; LAND-1; REC-2
McRae, Marie
REC-8
Meacham, Cristy
Mean, Brad
Measeau, William
Mecham , A. Quang
Mecham, Brannon
REC-1
Mecham, Christine
GEN-12
Mecham, Donald, Viola, Donald,
Wayne
Mecham, Jerry
Mecham, Lowell
ACC-2, 20; BIO-4, 5; GEN-15, 36, 38,
39; LAND-1;
REC-17
Mecham, Melain and Merrilie
GEN-13
Mecham, Marian and Malen
ACC-2, 12; GEN-1
Mecham, Stan
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Medford, Joan
ACC-10
Medford, Terry
ACC-10
Medley, J. Kyle
Meeds, Debbie
Meeks, Graydon

Mehan, Dave
ACC-12; GEN-1; REC-2; WSA-2
Mehl, Harry
GRAZ-3; REC-2
Mehling, Chris
ACC-1
Meigs, James
ACC-1; GRAZ-3; REC-2; WAT-4;
WSA-3
Mekolites, Edward
ACC-13; GEN-1; GRAZ-3
Mellard, Jonathan
ACC-13; GEN-1; GRAZ-3
Mellinger, J. Carl
Mellor, Reed
Melloy, Mark
Melton, Blake
GRAZ-5; REC-2
Meltzer, William
GRAZ-3; REC-2
Memmer, Marie
Memmott, Kelly
Menon, Gregory
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Meranda, Veronica
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Merges, Valerie
Merrell, Ted
Merrill, Chad
Merritt, Craig
Meshek, Mike
WSA-2
Messenger, Thomas
GRAZ-3; REC-2
Messenger, Thomas
GEN-1, 5
Messer, John
WAT-4; WSA-2
Messier, Bob
Messmer, Terry
Mesting, Cheus
ACC-1, 10; GEN-1; GRAZ-3
Metcalf, Sara
REC-8

BEST COPY AVAILABLE

Metcalf, Tom and Karen
GRAZ-3; REC-2
Mettenleiter, Mark
ACC-10
Metz, Patricia
Metzger, Roger
Metzger, Vinnie
GRAZ-3; REC-2; WSA-3
Meyer, Fred
ACC-13; GEN-1; GRAZ-3
Meyer, Keith
Mezzicho, Joe
Michael, Sarah
ACC-1
Michelotti, Garrick
Michie, Bob
Michl, Sara
GRAZ-3; REC-2
Michniewicz, Ed
GRAZ-3; REC-2
Michniewicz, Edward
ACC-13; GEN-1; GRAZ-3
Mickelsen, Mark
Middendorf, John
GRAZ-1
Middendorg, John
GRAZ-1
Middleton, Betsy
Mihailov, Amy
Milby, Lyle
ACC-13; GEN-1; GRAZ-3
Miles, Dustin
Miles, Gail
BIO-5
Miles, Martha
Miles, Miranda
Millard, Andrew
ACC-13; GEN-1; GRAZ-3
Millard, Andrew
ACC-10; GRAZ-3, 5; REC-2; WSA-2,
3
Miller, Allen
Miller, Anna
Miller, Bob
ACC-1; GRAZ-1, 3; 5
Miller, Bonnie
REC-8

Miller, Carole
GRAZ-3; REC-2
Miller, Charles
Miller, Conrad
Miller, D
Miller, Dan
ACC-1; GRAZ-1, 3, 5
Miller, David
GEN-5, 22
Miller, David
GEN-5
Miller, Dean
REC-1
Miller, Dennis
Miller, Donald
Miller, Donald
ACC-1, 2, 14, 16
Miller, Dusty, Rick, Jane and Lucas
ACC-1; GEN-23; GRAZ-3, 5,
LAND-1; REC-2; WSA-2,
WSR-1
Miller, Dwayne
Miller, Ernest
Miller Family
Miller, Gerald
Miller, Howard
ACC-10; WSR-3
Miller, Jack
REC-2
Miller, Jenifer and Neil
ACC-10; GRAZ-1; REC-2
Miller, Lucinda
WSA-3
Miller, Lynn
Miller, Larry
Miller, M. Stephen
REC-2
Miller, Nick
ACC-2
Miller, Norm
ACC-1
Miller, Ray
Miller, Rob
ACC-1; GRAZ-5; REC-2, WSA-3
Miller, Ronda
Miller, Sarah
ACC-1; GRAZ-5; REC-2; WSA-3

Miller, Thomas
GEN-1; GRAZ-3; REC-2; WSA-2,
WSR-1
Miller, Tom
ACC-1; GEN-1, 5
Miller, Wes
Millett, Amanda
Millett, Annmarie
ACC-2
Millett, Elanor
Millett, Linda
ACC-2
Millett, Lloyd
ACC-2, 10; GEN-13, 43, 45; GRAZ-3,
5; LAND-1, 4, 5; REC-1; WSA-2
Millett, Lloyd Jr.
Millett, Steve
Milligan, Archie
Millikan, Carol
ACC-1
Millner, Stephen
GRAZ-3; REC-2
Mills, Mathew
Millward, Brent
Millward, Bryn
Milner, Bill
Milner, Doris
ACC-1; WSA-3
Milner, Ernest
Mims, Willa
GRAZ-3; REC-2; WSA-3
Minas, Russell
GEN-1, 5
Minear, Adam
ACC-1; GEN-3
Miner, Glen
Mingo, Richard
ACC-4
Mingo, Latricia
ACC-1; GRAZ-5; REC-2; WSA-3
Minkin, Jordan
ACC-1; GEN-1, 5
Minks, Ron
Minter, Rosemary
REC-1
Minton, Charles
GRAZ-3; REC-2

Minton, Kekoni
GRAZ-3; REC-2
Mintz, Leigh and Carol
Minzer, Sharon
REC-2
Misley, Dan
Missick, Lora
Mitchell, Albert
Mitchell, Chuck
Mitchell, David
ACC-2, 3; BIO-5
Mitchell, Harvey and Karma
Mitchell, Heidi
Mitchell, Jim
REC-8
Mitchell, P
Mitchell, Scott
Mitchell, Sherrie
ACC-1; GRAZ-1, 3, 5
Mittelstadt, Beverly
ACC-3
Mittelstaedt, Scott
GRAZ-5; REC-2
Mitts, Nancy
REC-8
Mix, Angela
ACC-1; GEN-23; GRAZ-5; REC-2;
WSA-3; WSR-1
Mockler, Amanda
GRAZ-3; REC-2
Moder, Timothy
ACC-1; GEN-1, 5
Moeller, Sherri
WAT-4; WSA-2
Moench, Meredith
Moffat, Paul
GRAZ-3; REC-2
Moffit, Jen
Mofu, W. Mark
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Mohle, James
Moiseyev, Maya
GEN-1; GRAZ-3; WSA-3; WSR-1
Moler, Mary Ann
Molle, Jason
Moller, L. Jack

BEST COPY AVAILABLE

263

Mone, Carol
WSA-2
Monkman, Jerry
ACC-1; GRAZ-5; REC-2; WSA-3
Monqris, Jerry
Monroy, Julio
Montemayor, Drusilla
REC-8
Montgomery, Paul
Moon, Blake
Moore, Andy
Moore, Barry
ACC-10; REC-2
Moore, Bill
REC-2
Moore, Billy
Moore, Charles
GEN-1; GRAZ-1; REC-2
Moore, Erin
ACC-1; GEN-1, 22
Moore, Frankie
REC-7
Moore, Gayle
ACC-2
Moore, James
ACC-13; GEN-1; GRAZ-3
Moore, Judith
ACC-13; GEN-1; GRAZ-3
Moore, Kitty
GRAZ-1
Moore, Lula
Moore, Rick
ACC-9, 14, 15, 16; WSA-3
Moore, Ryan
ACC-8
Moore, Wade
ACC-8; GRAZ-5
Moore, William
GRAZ-3; REC-2
Moot, Patric
Moraczewski, Jan
GRAZ-3; REC-2
Moretta, Keith
REC-1, 3
Morgan, Dave
Morgan, David
ACC-13; GEN-1; GRAZ-3; WSA-2, 3
Morgan, Martin
ACC-1
Morgan, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Morgan, Rosina
GEN-5; REC-1
Morgan, Sandra
ACC-1; GRAZ-5; REC-2; WSA-3
Morgenstein, David
Morgenthaler, R. D.
Morreale, Raphael
ACC-2; REC-1
Morrell, Christine
Morrill, Ruston
Morrill, Stan
Morris, Arlene
Morris, Daryl
Morris, Frank
Morris, Gary
GEN-1; LAND-1
Morris, Gregg
ACC-1; GRAZ-5; REC-2; WSA-3
Morris, Jim and Lori
Morris, Joy
ACC-1; GRAZ-1, 3, 5
Morrison, Brad
ACC-2, 10
Morrissey-Pulvers, Carrie Ann
ACC-13; GEN-1; GRAZ-3
Morse, Milo
Moseley, Cari
REC-2
Moseley, Charles and Marie
GRAZ-3; REC-2
Moser, Richard
GRAZ-1
Moskowitz, Lauren
Mosle, Daniel
Moss, Jacob
REC-1
Moss, Larry
GRAZ-3; REC-2
Moss, Perry and Joan
Mossman, Robert
GRAZ-3; REC-2
Mostek, Mr. and Mrs. Raymond
Motes. Preston Jr.
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Mott, Jenna
GRAZ-5; REC-2
Motter, Joe
GEN-5; GRAZ-1; WSA-3
Mount, Justin
GRAZ-3; WSA-3
Mount, Michael
Movsky, Rick
ACC-1; GEN-1; WSA-2
Moyers, Mitch and Laurie
ACC-5; GEN-1, 13, 16; GRAZ-5;
REC-1
Muelhauser, Steven
ACC-10; GEN-16
Mueller, Gerald
Mueller, Robert
GRAZ-1, 3; REC-2; WSA-3
Muir, Keith
Mujica-Crepanzano, Laura
Mull, Bill
GEN-1; LAND-1
Muller, David
ACC-1; GRAZ-5; REC-2; WSA-3
Mullin, Timothy Jr.
Mulrooney, Garrett III
GRAZ-5; REC-2; WSA-3
Mulvaney, Dustin
ACC-1; GRAZ-5; REC-2; WSA-3
Munger, Maynard
REC-8
Munk, Dave
GEN-1, 5
Munk, Jerry
Munson, Mavis
ACC-10; WSR-4
Munson, Robert
ACC-10; WSR-4
Murdock, Ken
Murdock, Todd
GEN-22
Murphy, Patricia
GEN-9; LAND-1; REC-1
Murray, Greg
Murray, Maureen
Murray, Michele
ACC-10; REC-2; WSA-2
Murraygreen, Ryo
GRAZ-3; REC-2
Mutel, Robert
ACC-10; GEN-5; WSA-2
Myers, Barbara
ACC-13; GEN-1; GRAZ-3
Myers, Mary
REC-8
Myers, Wanda
REC-8
Myers, Wayne
GEN-22
Myes, Rande and Helen
ACC-1; REC-2
Naftel, William, M.D.
REC-1
Nagengast, Dirk
Nagler, Marilyn
GRAZ-1
Nagorka, Patricia
GRAZ-3; REC-2
Naille, R. Allen II
ACC-2
Natyle, Noah
ACC-1; GRAZ-5; REC-2
Neal, Amber
ACC-13; GEN-1; GRAZ-3
Nebeker, Darin, Lori, Jason, Jared,
Kyle and Becky
Nec, Shannon
GRAZ-5; REC-2; WSA-2
Nedesky, David
Neehart, Mara
Neff, Reta
REC-2
Nefstead, Marjorie
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Nefstead, Paul
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Nehour, Bryant
Neilsen, Neil
Neilson, Jimmy

264

Neiman, Paul
ACC-1, 10; REC-2; WSA-2
Nelson, Tren
Nelson, Brett
GRAZ-3
Nelson, Cynthia
GEN-1, 13; GRAZ-5
Nelson, Dan
Nelson, Dave
REC-2
Nelson, Dick
GRAZ-3; REC-2
Nelson, Don
Nelson, Elisa
ACC-13; GEN-1; GRAZ-3
Nelson, Garth
Nelson, Herbert and Mildred
GRAZ-3; REC-2
Nelson, Janet
ACC-1
Nelson, Jeffrey
Nelson, John
Nelson, John
Nelson, Karen
REC-8
Nelson, Karyn and John
GRAZ-3; REC-2
Nelson, Kristi
Nelson, Lonnie
Nelson, Scott
ACC-10, REC-2
Nelson, Tresa
Nericand, Rodney
ACC-2
Nesewich, Nancy
GEN-1; GRAZ-3; LAND-1; REC-2;
WSR-1
Nesta-Berry, Jean
ACC-13; GEN-1
GRAZ-3
Netuschil, Pamela
REC-8
Neunzert, Martin and Arleigh
GRAZ-1
Newbauer, Joanne
ACC-13; GEN-1; GRAZ-3

Newcomer, Joseph
REC-2
Newell, Christina
ACC-1; GRAZ-5; REC-2; WSA-3
Newell, Harry
ACC-3
Newell, Robert
Newfarmer, Terry
ACC-2
Newkirk, Lorraine
GEN-1, 5, 11; GRAZ-3; LAND-1;
WSR-1
Newman, Brownie
GRAZ-3
Newman, Dave
ACC-1; GRAZ-5; REC-2; WSA-3
Newman, Ezra
GEN-1; WSA-3
Newman, J.
ACC-1; GEN-1
Newman, Michael
GRAZ-3; REC-2
Newsom, Valerie
REC-1, 8
Nguyen, Emily
Nice, Salim
REC-8
Nicholl, David
GRAZ-3; WSA-3
Nichols, Chuck and Judy
ACC-1, 10; GEN-5; GRAZ-1, 3;
REC-2
Nichols, Gary
WSR-6
Nichols, J.
ACC-1; GRAZ-5; REC-2; WSA-3
Nichols, Lyle
ACC-13; GEN-1; GRAZ-3
Nichols, Michael
ACC-13; GEN-1; GRAZ-3
Nichols, Nick
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-3
Nickell, Mr. and Mrs. Howard
Nickelson, Lee
Nickles, Duncan
[illegible], Tim

Nielsen, Barry
ACC-12
Nielsen, Judith
Nielson, Donna
Nielson, James
Nielson, Jay
Nielson, Stephen
Nielson, Tom
Nielson, Tom and Sheree
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Niles, Kate
GEN-1; REC-2
Nilsson, Lowell
Nilson, Ralph
Nimmergern, John and Laura
ACC-10; REC-2; WSA-
Nishio, John
GEN-1; GRAZ-1; REC-2, 12
Nishwander, Ruth
GRAZ-3; REC-2; WSA-2
Nixon, Scott
Noble, Andy
Noirot, L. Deane and Neva
Nommensen, Amy
ACC-1; GRAZ-5; REC-2; WSA-3
Norine, Jim
ACC-2
Norgan, Joe
Norman, Judith
REC-2; WSA-2
Norris, James
ACC-20; BIO-5; GEN-13; GRAZ-3, 5;
REC-1
Norris, Susan and Kenneth
ACC-13; GEN-1; GRAZ-3
North, Glenn
Northrop, Clay
ACC-1; GRAZ-3; LAND-1; REC-2;
WSA-2
Norton, Daylan
ACC-1; GEN-1, 3
Norton, Judith
ACC-1; GRAZ-5; REC-2; WSA-3
Norton, Robert
ACC-16
Noster, Mary Ann
Notehoorn, Jim and Family

Noterman, A
ACC-2; GEN-1, 13; GRAZ-5
Noterman, Laurali
ACC-2; GEN-13; GRAZ-5
Noterman, Rhett
ACC-2; GEN-13; GRAZ-5
Notestine, Jim and Iris
GEN-1; REC-2
Novak, Lisa
ACC-13; GEN-1; GRAZ-3
Nowicki, Diane
GEN-5; WSA-3
Noyes, Weston
Numan, David
Nunn, Sarah
ACC-5, WSA-2
Nutting, John
Nye, Rich
Nyland, Bill
Nystrom, David
O'Brien, Bob
O'Brien, James Jr.
ACC-9, 14, 15, 16, WSA-3
O'Cannon, David
O'Connor, Kathryn
GEN-5
O'Donnell, Julie
ACC-1; GRAZ-5; REC-2, WSA-3
O'Donnell, Matt
ACC-1; GRAZ-5; REC-2, WSA-3
O'Dowd, Bill
O'Hara, Michael
ACC-1; GRAZ-5; REC-2, WSA-3
O'Herin, Buck
REC-2
O'Keefe, Thomas
ACC-1
O'Leary, Cathy
BIO-4; GRAZ-1
O'Malley, Lauren
ACC-1; GEN-1
O'Malley, Nancy
O'Mara, Philip
O'Neal, Denny
GEN-5; GRAZ-5
O'Neil, Lynn and Cindy
ACC-10, WSA-3

O'Neill, Eleni
Oakley, David
Oaks, David
Oates, Doug
REC-19
Oatney, Steve
Oberholtzer, John
GRAZ-3, REC-2
Oberto, Steve
Olsen, Gordon
Odell, Wesley
ACC-3, REC-2; WSA-2, 3
Oder, Dennis
GEN-22
Oestreich, Dennis
ACC-1; GEN-1, 3
Ogden, Bryce
Ogden, Darwin
Ogden, Michael
Oglesby, Dave
GRAZ-3, REC-2
Ohanian, Laura
GRAZ-3, REC-2
Ohendalski, David
Ohlsen, William
GEN-1, 22
Okerlund, David
Okerlund, Gail
Okie, Greg
Oldroyd, Candace
Oldroyd, Gordon
Oldroyd, Robert
Oldroyd, Fran
Oliver, Charles
Oliver, Thomas
ACC-1, GRAZ-5, REC-2, WSA-3
Olivero, Michael
GRAZ-1, REC-2
Olsen, Brent
Olsen, Connie
Olsen, Darwin
Olsen, David
Olsen, David
ACC-1, GEN-23, GRAZ-5, LAND-1,
REC-2, WSR-1
Olsen, Gary
Olsen, Ken
Olsen, Marc
GEN-23, GRAZ-3, LAND-1, WSR-1
Olsen, Parry
Olsen, Phillip
Olson, Daniel
Olson, David
Olson, Kelly
Olsen, Lonnette
REC-8
Olson, Marc
GRAZ-3, REC-2, WSA-3
Olson, Marcus
ACC-1, GRAZ-5, LAND-1, REC-2,
WSR-1
Olson, Stephen
Oluma, David
GRAZ-5, REC-2
Olyarnik, Suzanne
ACC-1, GEN-1, GRAZ-1, REC-2
Onks, Mary
Oppenheimer, Jonathan
GRAZ-1
Orcholski, Gerald
ACC-1, GEN-23, GRAZ-3, LAND-1,
REC-2, WSR-1
Ordal, Leslie
ACC-1, GRAZ-5, REC-2, WSA-3
Orgain, Peter and Carol
GEN-1
Orme, June
GEN-5, GRAZ-3, REC-2, WSA-2
Orndorff, Kim
Orr, David
BIO-1, 4, GEN-1, GRAZ-1, WSR-1
Orr, Nancy
GRAZ-3, REC-2
Osborn, Julie
GRAZ-3, REC-2
Osborne, Michele
GEN-1, 22, REC-2
Oscarson, Ed
Oss, Earl
Osterhout, Jeff
ACC-10, GEN-1, 5
Ostler, Robinson
Oswald, Fred
ACC-1, GRAZ-1, REC-2
Oswald, Joyce
BIO-1, GEN-5, GRAZ-3, REC-2,
WSA-2
Oswald, Lindsey
ACC-5, GEN-22, REC-2, WSA-2
Oswald, W. Wyatt
ACC-10, WSA-2
Otis, Kathryn
GEN-1, 5
Ott, Charlie
ACC-1, GRAZ-1, 3, REC-2
Ott, Echo
REC-1
Ott, J. Robert
ACC-2, 12, 17, BIO-5, GEN-13,
LAND-1
Ott, Kolter
ACC-2
Ott, Mira
ACC-2, 12, 17, BIO-5, GEN-13,
LAND-1
Ott, Patricia
REC-1, 2
Ott, Richard
Ott, Vickie
Ottenberg, Marjorie
ACC-1, 10
Overson, Paul
Owchar, Ann
GEN-1, GRAZ-3, REC-2, WSA-2
Owen, Bessie
ACC-1, WSA-2, WSR-4
Owen, Jennifer
GRAZ-3
Owen, T.
Owen, Langdon Jr.
ACC-1, GRAZ-3, REC-2
Owens, Barbara
GRAZ-3, REC-2, WSA-2, 3
Owens, Doug
ACC-5, GEN-1, 13, GRAZ-5, REC-1
Owens, Hunter
ACC-1, WSA-2, WSR-1
Owens, Lorin
Owens, Mark
Owens, Merrill
Oxley, James
Pace, Ben
Pace, Dennis
ACC-10, REC-2, WSA-3
Pace, David
Pace, Gordon
Pace, Layne
Pace, Rudolph
ACC-2, GEN-13, 15, GRAZ-5
Pack, Russell
ACC-1, WSA-3
Pace, Stephen
GRAZ-1, REC-2
Parmiter-Dunn, Steven
GRAZ-1, REC-2, WSA-3
Page, Alan
Pagen, Timothy James
ACC-1, GRAZ-5, REC-2, WSA-3
Pagenstecher, Waldemar
ACC-2
Paisner, Steve
Paisone, Larry
GRAZ-3
Palen, Howard
Palfreyman, Clark
REC-8
Palley, Kenneth
WAT-4, WSA-2
Palm, Jason
ACC-1, GRAZ-5, REC-2, WSA-3
Palmblad, Ivan
ACC-1, GRAZ-1, 3, 5
Palmer, Elizabeth
ACC-13, GEN-1, GRAZ-3
Pampeorin, John
ACC-1, GRAZ-3, REC-2, WSA-2
Pan, David
Pana, Dave
Pankow, Carolyn
ACC-1, GRAZ-1, 3, REC-2, WSA-3
Pankratz, Scott
GRAZ-5, REC-2
Panter, Adrienne
ACC-5, GEN-5, WSA-3
Papciak, Mike
GRAZ-5, REC-2
Pardee, Catherine
ACC-13, GEN-1, GRAZ-3

Parish, MacDell
Park, Brian
Park, Jen
Park, Robert
ACC-13; GEN-1; GRAZ-3
Park, Kimberly
Parker, Andrew
ACC-1
Parker, Branden
Parker, Elaine
REC-1, 3
Parker, Ellen and Ted
Parker, John
GEN-1
Parker, Margaret
ACC-1
Parker, Tom
REC-8
Parks, David
ACC-1; GRAZ-3, 5; REC-2; WSR-1
Parr, Ann
REC-8
Parrish, Linda and Kenneth
REC-8
Parrish, Lye
Parrish, Robert
GEN-5; REC-1
Parry, Ronald
LAND-1; REC-2
Parry, Scott
Parsons, Perry
Parsons, Randy
ACC-2
Parzych, Christopher
ACC-1; GRAZ-5; REC-2; WSA-3
Pasekoff, Dorene
ACC-10; GRAZ-3, 5; REC-2; WSA-3
Patalik, Edward
GRAZ-4, 5; REC-18
Paterson, Charlie
ACC-10; GEN-1; REC-2
Patrick, Michael
Patten, Jane
Patterson, Dennis
ACC-10
Patton, Hi and Lois
ACC-1; GEN-5; GRAZ-5; WSR-1
Patton, Kristen
ACC-13; GEN-1; GRAZ-3
Pau, Paul
ACC-2; GEN-13, 15; GRAZ-5
Paull, Steven
GRAZ-3; REC-2
Paulson, Diane
Pavord, Marcy and Tony
REC-1, 8
Pay, Clair
Payne, Cory
Payne, Dwight
Payne, Ray
GRAZ-3; REC-2; WSA-2
Pazich, Michael
ACC-1; GRAZ-5; REC-2; WSA-3
Pearson, Dave
Pearson, Dave
ACC-12; REC-2
Pearson, Mark
ACC-10; REC-2
Pearson, Owen and Carol
BIO-4; REC-8
Pease, Elizabeth
GRAZ-1; REC-2
Peay, Brad
Pech, Nanaye
BIO-1
Peck, Henry
GEN-1; GRAZ-3; REC-2; WSA-2;
WSR-1
Peck, Mary and Maurice
Peck, Michael
Pedersen, Megan
REC-1
Pedersen, Preston
ACC-2
Pedersen, Scott
Pedersen, Rex Jr.
Pederson, Joel
Pederson, Rovor
Pedro, LaRee
Peek, Jerry
GEN-1, 22; WSA-2
Peeples, Charles
Pelkey, Jo
ACC-13; GEN-1; GRAZ-3
Pen, Charles
Penderey, Bruce
ACC-1; GRAZ-1, 3, 5
Penhaligen, Charles
ACC-13; GEN-1; GRAZ-3
Pennart, Sherye
Penner, Michele
GRAZ-1; REC-2
Penniston, Gregory
Perkins, Dale
Perkins, Ray
REC-2
Perkins, Leroy
Perkio, Steven
ACC-2
Pero, Dominic
Perri, Chris
REC-2; WSA-3
Perri, Sedren
Perry, Hal
Perry, Seth
ACC-1; GRAZ-5; REC-2; WSA-3
Persons, Wayne
GEN-1; GRAZ-3; REC-2; WSA-3
Petelle, Michael
GRAZ-1
Petencin, Don
GRAZ-1
Peters, Wayne
ACC-1
Petersen, Birk
Petersen, Doug
Petersen, George
GRAZ-3; REC-2
Petersen, Les
Petersen, Mike
GRAZ-1, 4
Petersen, Peggy
Petersen, Rex
Petersen, Sue
ACC-1; GEN-1; LAND-1; REC-2
Peterson, Alan
Peterson, Anna
GRAZ-3; REC-2
Peterson, Anne
GEN-1
Peterson, Blake
Peterson, Bradley
Peterson, Bradley
Peterson, Dewain
Peterson, Donald
ACC-1, 10; GEN-5; GRAZ-5; REC-2;
WSR-1
Peterson, Hillary
GEN-5; GRAZ-3; WSR-1
Peterson, Lori
ACC-10
Peterson, Robert
Peterson, Roger
ACC-5; GEN-29; WSA-2
Peterson, Rollo
Peterson, Steven
Peterson, Thomas
GEN-13, 15; GRAZ-5
Peterson, Troy
Petersons, The
Peterson, Gerold
Petite, Duane
GEN-1; REC-8; WSR-1
Petrich, Shirley
GRAZ-3; REC-2
Petrik, Anne and Gene
Pettegrew, Daniel
GRAZ-3; REC-2
Pettit, Dan
ACC-1; REC-2
Pettit, Daniel
ACC-1; LAND-1; REC-2; WAT-2
Pettit, Marie
GEN-1; GRAZ-3; LAND-1; REC-2;
WSA-2; WSR-1
Pettus, D. Lindsay
Petty, Guy
Pham, Phat
ACC-10; GRAZ-3; WSA-3
Phelps, Kelsey
ACC-7
Philion, Jennifer
ACC-1; GRAZ-5; REC-2; WSA-3
Phillips, Robert
Piani, James
Piatt, Robert
ACC-1; GRAZ-5; REC-2; WSA-3
Pickles, Mark

Pierce, Melinda
GRAZ-3
Pierson, Dianne
Pierson, Judith
REC-2
Pike, Judy
Pilhoski, Frank
ACC-13; GEN-1; GRAZ-3
Pillmore, Donn
GEN-13; REC-1
Pillmore, Melanie
GEN-13; REC-1
Pinder, Maggie
ACC-2, 7
Piper, D.
Piper, Robert
Pitcher, Kory
ACC-1; GRAZ-1, 3, 5
Pitala, John
ACC-1; GRAZ-5; REC-2; WSA-3
Planck, Rod and Marlene
ACC-1; GEN-3; GRAZ-3; REC-2
Platt, Dave
GRAZ-1; REC-2
Platt, Krista
REC-1
Pockman, William
ACC-1; GEN-5; REC-1; WSA-2
Pogliano, Loren
ACC-10; REC-2
Poindexter, Charlotte
ACC-13; GEN-1; GRAZ-3
Pokorny, Rhea
Pokorny, Steve
GEN-22
Pokorny, Tami
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Pollock, David
BIO-5
Pollock, Lonnie
GRAZ-5
Pollock, Megan
ACC-2; REC-1
Pollock, Shanon
ACC-2
Pollock, Shayne

Pollock, David Jr.
BIO-5; GEN-1; REC-1
Poor, Catherine
ACC-13; GEN-1; GRAZ-3
Pope, Judy
ACC-1; WSA-2
Pope, Kelley
ACC-1; GRAZ-5; REC-2; WSA-3
Pope, Alice, Ph. D.
ACC-1; BIO-1; GEN-5; REC-2;
WSA-2
Popolizio, Carlo
GEN-1, 5
Port, David
ACC-1; GEN-7
Porter, Blain
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Porter, Keneth
Porter, Vergean
ACC-2
Portzi, Pam
Post, Paula
GRAZ-1; REC-2
Poster, Bruce
GRAZ-3; REC-2
Potter, Bernice and James
Potter, Gary
Potter, Holly
WSA-2
Potter, John
ACC-2
Potts, Gail
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSR-1
Potts, Taylor
Poulsen, Donald
Poulsen, Erin
Poulson, Blaine
Powell, George
Powell, Rod
Pratt, David
REC-2
Pratt, Donna
Pratt, Elizabeth
ACC-1; WAT-4
Pratt, Kathleen and David
GRAZ-3; REC-2

Pratt, Rick
ACC-1; BIO-1; GEN-1
Prescott, Jack
REC-1
Preston, Scott
Prevo, Suzette
GEN-1
Prezulman, Robert
GEN-1
Price, Ed
ACC-1; WAT-4; WSA-2
Price, Evan
Price, Keith
Price, Lisa
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-3
Price, William
Prisbrey, Jay
Pritchett, Clyde
Pritchett, Robert
Probert, David
Probst, Luke
REC-1
Proe, Steven
REC-8
Proescholdt, Kevin
GRAZ-3; REC-2; WSA-3
Proett, Paul
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Promer, Virginia and Wilhelm
ACC-1; GEN-1, 5
Prose, Doug
ACC-1; GRAZ-1; LAND-1
Prosser, Lynn
Provost, John
Pruden, Steven and Michelle
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Pruitt, John
Pugh, Arkay
ACC-5; BIO-1; GEN-1, GRAZ-5
Pugh, Burt
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Pugh, Ian
ACC-5; GEN-1, 13; GRAZ-5; REC-1

Pugh, Roger and Kathleen
ACC-5, 18; GEN-1, 13; GRAZ-5;
REC-1
Pugh, Scott
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Pugh, Susan
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Purrington, Mark
Puzey, Kim
Pyne,Todd
Pyper, Mark
Qualls, Michael
Queley, Jill
Questad, Erin
ACC-5, 10; WSA-2
Quinn, Adda
REC-8
Quinn, Eunice
REC-8
Quinn, L.
Rabiger, David
GEN-1
Rahy, Kim
ACC-13; GEN-1; GRAZ-3
Rachel, Naomi
GRAZ-3; REC-2
Rackham, Rick
Radebaugh, Jani
GEN-1; REC-1, 2
Radkowsky, Michael
Radovich, Nicholas
GRAZ-1, 3; WSA-3
Radovich, Nick
Rafferty, Scott
Ramey, Robert
ACC-2
Ramirez, Jessica
ACC-2; REC-1
Ramirez, Michelle
ACC-2; GEN-1, 13; GRAZ-5
Rampe, Glenn
GRAZ-3
Ramsay, Grant
ACC-16
Ramsey, Robert
ACC-24; GEN-9, 13, 15, 30, 39, 40, 43,
44; REC-1, 10, 12, 19; WSR-3

Randall, Donna
ACC-2; GEN-13; GRAZ-3, 5;
LAND-1
Randall, Larry and Marla
REC-1
Randle, David
GEN-9, 15; REC-12
Randolph, Betty
Randolph, Brian
Raney, Bob
ACC-10; GEN-5; REC-2
Rango, William
ACC-1; GEN-1; WAT-4; WSA-2
Ranish, James
ACC-13; CEN-1; GRAZ-3
Ransom, Reuben
Ransom, Sara
GRAZ-3; REC-2
Rappaport, Deborah
ACC-5; GEN-5; WSA-3
Rangel, Ruben
ACC-10
Ras, Ron
Rasaheid, P
ACC-3
Rasi, Neil
Rasmussen, Grant
Rasmussen, John
Rasmussen, Lee
Rasmussen, Rae
Rasmussen, Terrill
Rasmussen, Dr. J.
GRAZ-3; REC-2
Rasmussen, Keith
Rasof, Henry
Ratemke, Gordon
ACC-2
Rathman, Justin
GRAZ-5; REC-2
Ratigan, Karen
ACC-1; GRAZ-5; REC-2; WSA-3
Ratzke, Billie
ACC-2
Rauzen, Mark
GRAZ-3; REC-2; WSA-3
Rawling, Geoffrey
GEN-22; WSR-1

Rawlins, Larry
Ray, Duane
GRAZ-1; REC-2
Ray, Gisela
GRAZ-3; REC-2
Ray, Richard
ACC-10; GEN-1; LAND-1; REC-2;
WSA-2; WSR-1
Rayburn, Rebecca
GRAZ-1; REC-2
Raymond, Brendan
ACC-13; GEN-1; GRAZ-3
Raymond, Julie
ACC-13; GEN-1; GRAZ-3
Real, Carolyn
Reardon, David
ACC-13; GEN-1; GRAZ-3
Reardon, Scott
REC-2
Rachel, Eric
GRAZ-3; WSA-2
Record, Lucille
Redd, David
Redish, Laura
WSA-3
Redland, Don
Reed, Bob
GRAZ-3; REC-2
Reed, Dawn
ACC-5; REC-1
Reed, Melinda
GEN-1
Rees, Michael
GEN-19, 20, 21; GRAZ-3; REC-2, 10
Reese, David
Reeves, Katherine
Regan, Allison
ACC-1; GRAZ-5; REC-2; WSA-3
Reich, Andrew
ACC-13; GEN-1, 22; GRAZ-3; WSA-2
Reid, Gayle
ACC-1; WAT-4; WSA-2
Reid, Greg
ACC-1; GRAZ-5; REC-2; WSA-3
Reid, Peter
Reiheld, William

Reilly, Scott
GRAZ-5; LAND-1; REC-2; WSR-1
Reinders, Monte
ACC-1; GRAZ-5; REC-2; WSA-3
Reinsma, Judy
REC-8
Rember, Laurance
Remington, Donald
Rencher, Grant
Reneau, Steven
GRAZ-3; REC-2
Rengers, Edward and Jean
Rennel, C.W.
Renninger, Kim
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1;
REC-2; WSA-3; WSR-1
Resetarits, Mark
REC-2
Revoir, Edwin
Reynolds, Dale
Reynolds, Glade
Reynolds, Lynn
Reynolds, Nikki
REC-8
Rhees, Jeff
Rhoades, Kay
Rhodes, John
Rhodes, Jon
ACC-1, 10; GEN-1; GRAZ-3
Rhodes, Kody
Rhodes, Matt
Rhodes, Russel
Rhodes, Will
ACC-13; GEN-1; GRAZ-3
Ribe, Tom
GEN-1; GRAZ-1; WSA-3
Rice, Dan
ACC-1; BIO-4, 5; GEN-1, 2, 11, 12;
LAND-1; REC-10; WSA-1, 2, 3;
WSR-1
Rice, Daryl
ACC-1, 13; GEN-1; GRAZ-3; LAND-1; REC-2;
WSA-2; WSR-1
Rice, Kathie and Dave

Rich, Barry
ACC-1; GRAZ-3, 5; LAND-1; REC-2;
WSA-3; WSR-1
Rich, Dave
Rich, Rusty
ACC-2
Richards, Marlowe
Richards, Phillip
REC-1, 5
Richards, Tarney
ACC-2
Richardson, Albert
ACC-13; GEN-1; GRAZ-3
Richardson, Ed
Richardson, Gail and John
GEN-1; GRAZ-3; REC-2
Richardson, John
Richardson, Ken
Richardson, Potato
REC-8
Richardson, Shirlene and Le Roy
Richman, Greg
Richter, Roland and Sheila
REC-8
Ridley, Heathcliffe
GEN-1
Ridder, Cathy
Rider, Alan
GEN-1; GRAZ-3
Ridge, Roger
ACC-1; WSA-2
Riding, Varl
Ridman, Bruce
Rielle, Jennifer
Riggle, Edward
ACC-10
Riggs, Gina
ACC-1
Riggs, Shirley
REC-2; WSA-3
Rigney, Mark
GEN-1; GRAZ-1; WSA-3
Riponi, Marie
ACC-1; GRAZ-5; REC-2; WSA-3
Riles, David
GRAZ-1; REC-2

Riley, James
GRAZ-1; REC-2
Riley, Rachele
Rino, Justin and Carle
Rinsko, Don
Ririe, Bruce
Rishel, Nick
Ristau, Kenneth
Ritter, C.D.
REC-2
Rivera, Dion
GEN-1, 22
Rivers, Walter
Roadruck, Dr. and Mrs. Davis
Robbins, D. Rodney
Robbins, Kathy
Robbins, Kristen
REC-2; WSA-3
Robbins, Mark
Roberts, Cozette
Roberts, Ed
Roberts, Enis
Roberts, Owen
Roberts, Katherine
GRAZ-3; REC-2
Roberts, Kathlene
ACC-1; BIO-1; GRAZ-3
Roberts, Kay
ACC-1; GRAZ-1, 3, 5
Roberts, Larry
Roberts, Michelle
Roberts, Scott
ACC-10; WSA-3
Roberts, Shane and Becky
Roberts, Bruce
REC-2
Robertson, Alan
Robertson, Blaine
Robertson, Gloria
Robertson, Mike
Robey, Waddell
ACC-13; GEN-1; GRAZ-3, 5; REC-2
Robinette, John
ACC-1; GRAZ-5; REC-2; WSA-3
Robinson, Christopher
ACC-13; GEN-1; GRAZ-3

Robinson, Eva
ACC-1; GRAZ-5; REC-2; WSA-3
Robinson, Jay
Robinson, Karen
ACC-1, 5, GEN-1; REC-1
Robinson, Kirk
ACC-1; GEN-1
Robinson, Michael
Robinson, Mont
Robinson, Stanley
Robinson, Steven
Robinson, Kirk, Ph.D.
GEN-1
Robison, Jeff
ACC-1; GEN-1, 5
Robison, Steve
Roccon, Theresa
GEN-1; LAND-1; REC-1
Roche, Lucille
Rock, Jim
Rockwood, Andrew
Rockwood, Emily
Rockwood, James
Rockwood, Katie
Rod, Lu Ann
REC-8
Roderback, Cecil and Ann
Roderick, Rudi
Rodgers, Andrew
ACC-13; GEN-1; GRAZ-3
Rodriguez, Marcel
GEN-1, 11, 24, 30; REC-1
Rogalin, Kim
Rogalin, Kim
Rogers, David
Rogers, Stacey
ACC-1; GEN-1; GRAZ-3
Rogers, Suzanne
ACC-1; GEN-1, 5
Rogovy, Kathryn
Rohde, Danielle
GEN-1
Rollin, Janet
REC-2
Romander, Linda
REC-8
Romney, Chris

Root, Sue and Robin
GRAZ-3; REC-2
Roper, Joleane
Roscetti, Dennis
ACC-5; REC-1
Rose, Martha
GRAZ-5; REC-2
Rose, Ron
Rosenbaum, D.
Rosenblum, Miriam
ACC-1, 5; WSA-2
Rosenmeier, Terry
GRAZ-1
Rosenow, Susan
Rosenthal, Jim
GRAZ-3; REC-2
Rosner, Charles
Rosoff, Matthew
ACC-5
Ross, Eric
ACC-13; GEN-1; GRAZ-3
Ross, Howard and Barbara
GRAZ-5; REC-2; WSA-2
Ross, Janet
ACC-10; LAND-1; REC-2
Ross, Jeff
Ross, John
GRAZ-3; REC-2
Ross, Lanny
Ross, Matthew
Ross, Matthew
Ross, Wendell
Rossborough, Eric
GEN-1, 22; WSA-2
Roth, Dr. Andrew
ACC-10; WSA-2
Roth, Martin
Roth, Richard
ACC-1; GRAZ-5; REC-2; WSA-3
Rouillard, Gregory
GEN-5; REC-1; WSA-2
Rouley, Dudley
Roundy, Adrianne
Roundy, Brenda
ACC-5; GEN-1, 13, 16; GRAZ-5;
REC-1

Roundy, Clinton
ACC-5; GEN-13; GRAZ-5; REC-1
Roundy, Delin
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Roundy, Jerry and Sherree
Roundy, Kurtis
ACC-5; GEN-1, 13, 16; GRAZ-5;
REC-1
Roundy, Lane
Roundy, Normand
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Roundy, Reisha
ACC-5; GEN-13; GRAZ-5; REC-1
Roundy, Rosie, Gene, Chris, Eddy and
Kyle
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Roundy, Sheldon
ACC-5; GEN-13; GRAZ-5; REC-1
Rousculp, Tiffany
ACC-5; GEN-5; WSA-2
Rouse, Thomas
Routh, Dennis
Rowcroft, Denise
GRAZ-3; REC-2
Rowe, Guy
ACC-2
Rowe, W. Jan
ACC-1, 16; GEN-1; GRAZ-3, 5;
WSR-1
Rowles, Jvie
REC-8
Rowlette, John and Nivian
Rowley, David
Rowley, Dennis
ACC-2
Rowley, Fred and Myrel
Rowley, Robert
Rubenstein, Les
Rubey, Steven
GRAZ-3; REC-2
Rubinstein, Michael
GRAZ-5; REC-2
Rud, John
GRAZ-1; REC-2
Rudnyczyj, Dar
REC-2

Rudolph, Gerald
ACC-1, 10; GEN-1; LAND-1; REC-2;
WSR-1
Rudolph, Joan
Rudolph, Gale, Ph.D.
Randy, Brenda
REC-2
Ruiz, John and Hope
Rumstad, Todd
WAT-4; WSA-2
Runyan, Curtis
GEN-1
Ruppert, David
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-1; WSR-1
Ruscoe, Dean
ACC-13; BIO-1; GEN-1; GRAZ-3;
REC-2; WSA-2
Rushton, Troy
GEN-5; GRAZ-3; REC-2
Russell, Alexandra
WAT-4; WSA-2
Russell, Greg
Russell, Steven
GRAZ-3; REC-2
Russman, Richard
GRAZ-3; REC-2
Rust, Evelyn
Rust, Terry
ACC-1, 2, 10
Rutkowski, Robert
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Rutter, Stephen
REC-1; REC-8
Ryan, Nicole
ACC-1; GRAZ-5; REC-2; WSA-3
Ryan, Patrick
ACC-1; GEN-1; LAND-1; WSR-1
Ryder, Eileen
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1;
REC-2; WSR-1
Rytenski, Evan
ACC-1; GRAZ-5; REC-2; WSA-3
GRAZ-3

Saccardi, John
GEN-1; REC-2
Sachs, Richard
GEN-1, 22; WSA-2
Sefky, Richard
Sage, Gloria
ACC-10; WSA-2
Sage, Jeffrey and Deborah
Sage, Peter
ACC-13; GEN-1; GRAZ-3
Salazar, Linda
GEN-1; GRAZ-3; REC-2; WSA-2;
WSR-1
Salman, W.
Salmon, Bill
REC-1; REC-8
Salter, Grant
Salzman, Steve
Sampson, Garry
Sams, James and Donna
GRAZ-3, 5; REC-2; WSA-3
Sanborne, Mary Anne
GRAZ-3; REC-2
Sanchez, Alfreno
Sanchez, Rich
WAT-4
Sanders, Chuck
Sanders, Duane
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Sanders, Gary
Sanders, Jeff
Sanders, Jeff
Sanders, Kenny
Sanders, Kir
Sanders, Makai
Sanders, Merill
Sandersen, Jerry
Sanderson, Don
ACC-1; GEN-1; GRAZ-3
Sanderson, Wayne
Sandgren, Robert
Sanford, Edgar
Sankranti, Rajiv
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Sanneman, Edward

Sant'Angelo, Linda
ACC-13; GEN-1; GRAZ-3
Sarnicola, Dan
ACC-1; GRAZ-5; REC-2; WSA-3
Sartori, Craig
ACC-2
Sartori, Eric
Sasser, Loy and Lovell
REC-8
Sauer, David
GRAZ-5; LAND-1; REC-2; WSR-1
Saul, Jeffrey
ACC-2
Saul, Kim
ACC-2
Saunders, Timothy
ACC-1; GRAZ-5; REC-2; WSA-3
Saunts, Mark
GRAZ-2
Sauter, Allan
ACC-1, 5; REC-1
Savee, Mark
GRAZ-3; REC-2
Savett, Adam
BIO-1; GEN-5; GRAZ-3; REC-10, 2;
WSA-2
Sawyer, Kathryn
ACC-13; GEN-1; GRAZ-3
Saxon, E.
REC-2
Saxton, Mary
Sayles, Richard
ACC-1; GEN-1; GRAZ-3; LAND-1;
WSA-1; WSR-1
Scanlan, Peter
ACC-1; WAT-4; WSA-3
Scarpinatto, Thomas
GEN-1; GRAZ-1; LAND-1; REC-2
Schade, Jim
Schade, Richard
Schadlick, William
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Schaefer, Bradley
Schaefer, Paul
ACC-1; GRAZ-5; REC-2; WSA-3
Schaffermeyer, Robert

Schantz, Michael
Schemak, Lauren
ACC-1; ACC-5; REC-1
Scheid, David
REC-1; REC-4
Schein, David
GEN-14
Schenk, Sheila
Schepps, Jake
GEN-1; REC-2
Scher, Sarah
ACC-1; GEN-1; GRAZ-5; LAND-1;
REC-2; WSR-1
Scheuerman, R. L.
GRAZ-3; REC-2
Schick, Alan
WSA-3
Schiffmiller, Gary
ACC-5; WSA-3
Schiller, Chris
GEN-1; REC-2; WSA-2
Schimkat, Helga
ACC-1; GRAZ-5; REC-2; WSA-3
Schimmel, John
Schimmoeller, Chris
GRAZ-1; REC-2
Schmechel, Ronald
ACC-1, 5; REC-1
Schmidt, Daniel
GRAZ-3; REC-2
Schmidt, Jennifer
ACC-1; GEN-1; GRAZ-3
Schmidt, Stephen
ACC-10; GRAZ-3; REC-2; WSA-3
Schmierer, Alan and Anna
REC-2
Schmitt, Robert
ACC-13; GEN-1; GRAZ-3
Schmitz, Mark
ACC-1; GRAZ-1; GRAZ-3, 5
Schneider, David
Schneidr, Mr. and Mrs. F.
Schneller, Andrew
ACC-13; GEN-1; GRAZ-3
Schnepel, Kate
ACC-10; GEN-22

Schneider, David
WSA-1
Schocket, Gordon
Schoen, Mark
Schofield, Douglas
Schonck, Joan
GRAZ-3; REC-2
Schoolbeck, Mark
GRAZ-5; LAND-1; REC-2, WSR-1
Schow, James
Schroeder, Daniel
Schroeder, Erv
ACC-1; GRAZ-5; REC-2; WSA-3
Schroeder, Todd
Schultz, Mike
REC-2; WSA-2
Schultz-Ela, Dan
Schumaker, John
GRAZ-3; REC-2
Schuman, William
BIO-1; GRAZ-3
Schumann, Klaus and Mary
GRAZ-3; REC-2
Schutt, Nancy
ACC-1; GRAZ-5; REC-2, WSA-3
Schuurman, Gregor
ACC-1
Schwejda, Kristina
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1;
REC-2; WSR-1
Schwartz, Angela
ACC-13; GEN-1; GRAZ-3
Schwartz, Bruce
Schwartz, Ephraim
ACC-1
Schwartz, Jeff
ACC-10
Schwartz, Joseph
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1;
REC-2; WSR-1
Schwartz, Karen
REC-8
Schwartz, Sam
Schwartz, Wayne
REC-1; REC-4

Schweigerdt, Stephen and Bronwyn
REC-2, WSA-3
Schweitzer, Eric
ACC-1; GRAZ-5; REC-2, WSA-3
Schwerman, J.
ACC-1; GRAZ-5; REC-2, WSA-3
Schwinsow, Joshua
ACC-2
Scoirl, Roger
Scorsone, Bruce
ACC-1; GEN-5; GRAZ-5; LAND-1;
REC-1, 2;
WSR-1; WSA-2
Scott, Anika
Scott, Gerald
ACC-7
Scott, Janet
ACC-5, 10; GRAZ-3, 5; REC-1, 2;
WSA-3
Scott, John
Scott, John
ACC-1, 10; GRAZ-1; REC-2
Scott, Michael
Scott, Patricia
REC-8
Scott, Peter
ACC-1; REC-1
Scow, Bob
Scranton, Robert
Scribner, Jerry and Penny
REC-1; REC-8
Sumsion, Steve
Searle, Michael
Searle, Randy
Searle, Wanda
Seegers, Michael
Seegert, Alan
REC-2
Seeley, Richard
REC-2
Seely, J.A.
Seese, Linda
GRAZ-1; REC-2
Seibert, Barbara
ACC-5, GEN-5, WSA-2
Seiler, Jon
BIO-5, REC-1

Seilheimer, Titus
ACC-13; GEN-1; GRAZ-3
Seimon, Randall
Seko, Julia
ACC-13; GEN-1; GRAZ-3
Seligman, Dan
Selke, Alia
ACC-1, 10; GEN-1; GRAZ-3,
LAND-1; REC-2, WSR-1
Sellers, Joan
ACC-13; GEN-1; GRAZ-3
Sells, Clark
ACC-13; GEN-1; GRAZ-3
Sender, Dan
ACC-1, 13; GEN-1; GRAZ-3, 5;
REC-2; WSA-3
Senft, David
ACC-13; GEN-1; GRAZ-3
Sens, Rosemary
GRAZ-5, REC-2
Sennett, Anita
ACC-1; GRAZ-5, REC-2, WSA-3
Serkland, R. C.
Serlin, Steve
Serr, Casey
Sena, Dawn
ACC-1; GEN-1; WAT-4, WSA-2
Sessions, Brook
Severance, David
ACC-1; GRAZ-5, REC-2, WSA-3
Severance, Owen
GEN-12, 26
Sewell, Peter
GRAZ-5; REC-2
Shahel, Lexie
REC-1, 4
Shackleford, Justin
Shakespear, Brady
REC-1
Shakespear, Carl
BIO-5; GEN-15; REC-1
Shakespear, Franz, Ryan, David,
Shelly, John, Jim
GEN-13
Shakespear, K. M.
Shakespear, Kay
ACC-5; GEN-1, 13; GRAZ-5; REC-1

Shakespear, Kaylynn
REC-1
Shakespear, Ryan
ACC-18, 20; ACC-8
Shakespeare, Mary
Sharp, Laura
BIO-4; GRAZ-3; REC-1, 8; WSA-3
Sharp, Martin
ACC-10; WSA-3
Shaw, Barbara
Shaum, Richard
Shaw, James
Shaw, Joe
ACC-1; GRAZ-5, REC-2, WSA-3
Shaw, Joel
ACC-1, 13; GEN-1; GRAZ-3, 5,
LAND-1; REC-2;
WSA-3; WSR-1
Shea, Lori
REC-8
Shear, Kat
Sheffield, Deane
Shelberg, Wesley
REC-2
Shelby, Joe
Shelley, Dee
Sh-Sen, Allen and Wynne
GRAZ-1
Shelton, Christine
REC-2
Shepard, A.
Shepard, Matthew
Shepard, Lesley
Shepherd, Brian
Shepherd, Naomi
Shepherd, Shirley
GRAZ-1
Shepherd, Steven
Shepherd, Tracy
Sheriff, Merrill
Sherrard, Kathryn
ACC-13; GEN-1; GRAZ-3
Sherson, Marc
ACC-1, 12
Sherwood, Dennis
Sherwood, Scott

Sherwood, Tom and Sale
REC-4
Sherriton, Yevgenya
ACC-1; GRAZ-5; REC-2; WSA-3
Shimada, Michelle
ACC-1; GRAZ-5; REC-2; WSA-3
Shipek, Carlow
Shipley, Robert and Pauline
GRAZ-3; REC-2
Shipp, Cory
GEN-1
Shishim, David and Margaret
ACC-1; GRAZ-5; REC-2; WSA-3
Shishim, Melinda
ACC-1; GRAZ-5; REC-2; WSA-3
Shlander, Sam
ACC-1; GEN-1, 5; GRAZ-5
Shrey, Robert Jr.
LAND-1; REC-2
Shubert, Rae
Shue, Jennifer
GRAZ-5; REC-2; WSA-3
Shuha, Margaret
REC-1, 2
Shuller, Michael
Shuker, Barbara
GRAZ-5; REC-2
Shulsted, Gordon
Shultz, Timothy
GEN-1, 5
Shumaker, Link
ACC-3; WAT-4; WSA-2
Shuman, Derek
GRAZ-3; REC-2
Shumway, Clare
Shumway, DeLynn
Shurman, Mary
GEN-1, 22; WSA-2
Sickel, Kimberly
GRAZ-5; REC-2
Sieburg, Michael
GRAZ-5; REC-2
Sieczkiewicz, Robert
GEN-1, 22; WSA-2
Siegel, Melissa
ACC-1; GEN-7

Siegel, Wren
ACC-3
Sierhut, Jerod
Sigler, Larry
Silberman, Hilary
GRAZ-3; REC-2
Silberman, Michael
ACC-1; GEN-23; GRAZ-5; REC-2;
WSR-1
Silk, Harold
REC-1
Sill, R.
Silverstein, Alan
ACC-10; LAND-1; REC-2
Silvestri, Timothy
GRAZ-5; REC-2; WSA-2
Simister, Alan
Simmerman, Doug
Simmonds, David
GRAZ-4
Simmonds, Don
Simmons, Dave
Simmons, James and Angela
Simmons, Leah
ACC-1; GEN-23; GRAZ-5; LAND-1;
REC-2; WSR-1
Simmons, Ray
GRAZ-3; REC-2; WSA-2, 3
Simmons, Sheri
Simms, Lisa
ACC-1; WSR-1
Simon, Janet
ACC-13; GEN-1; GRAZ-3
Simon, Sarah
Simons, Marc
REC-2
Simonson, Patricia
Simper, Wayne
Simpson, Brett
ACC-1; GRAZ-5; REC-2; WSA-3
Simpson, Gary
GRAZ-3; REC-2; WSA-2
Sinderson, Sam
GEN-1; GEN-5
Sine, Joe
ACC-1; GRAZ-5; REC-2; WSA-3

Singel, Mitchell
GRAZ-3; REC-2
Singer, Rory
Singh, Khalsa Mha Atma
GRAZ-3
Sipkin, Sandra
REC-1
Sittenfeld, Tavras
ACC-1; WSR-1
Sitterud, Clarice
Sivley, Steven
BIO-1; GRAZ-1; LAND-1; WAT-4;
WSA-3
Sjogren, Don
Skeen, William
Skelton, William
ACC-10; GEN-1; GRAZ-3; LAND-1;
WSA-2; WSR-1
Skiby, Bob
Skoski, Steve
REC-1
Skousen, Clifford
Skricki, Ed
GRAZ-5; REC-2
Slack, Danny
ACC-2
Slack, Jill
Slack, Penny
Slaff, Craig
Slate, R. Matt
Slattery, Pat
ACC-2
Slattery, Wayne
Slauenwhite, Norm
Slawinski, Maria
ACC-2
Slawson, Thomas
ACC-1; GEN-1; GRAZ-3
Slayton, Robyn
ACC-1; WAT-4
Slider, Barbara
ACC-13; GEN-1; GRAZ-3
Slider, Francis
ACC-1, 13;GEN-1; GRAZ-3, 5;
LAND-1; REC-2; WSR-1
Sloane, Kenneth
GRAZ-3; REC-2

Sloat, Joseph
Smethurst, John
ACC-1
Smith, Al
GRAZ-1; REC-2
Smith, Amber
Smith, Ann
ACC-10; GRAZ-3
Smith, B.
Smith, Bess
Smith, Carolyn
Smith, Cheryl
GEN-1, 11; GEN-5; GRAZ-3;
LAND-1; WSR-1
Smith, Dale
ACC-1; GRAZ-5; REC-2; WSA-3
Smith, David
ACC-1, 5; WAT-4; WSA-2
Smith, Dean
REC-8
Smith, Dennis
GRAZ-3; REC-2
Smith, Dennis
Smith, Ellen and Dennis
GRAZ-3; REC-2
Smith, Eric
GEN-12, 22; GRAZ-3, 4; WSR-6
Smith, Frank
Smith, Gayle
Smith, Gibbs
ACC-1; GEN-22; REC-2; WSA-2
Smith, Gibbs and Catherine
ACC-10; GEN-1; GRAZ-1; LAND-1;
REC-2
Smith, Glenn and Diana
Smith, Gordon
Smith, Greg
Smith, Hunter
ACC-1; GRAZ-5; REC-2; WSA-3
Smith, James
ACC-1; GEN-1; LAND-1; REC-2;
WSA-2
Smith, James and Margo
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Smith, Jean
GEN-1, 5
Smith, Jeff and Connie

Smith, Jeffrey
ACC-13; GEN-1; GRAZ-3
Smith, Jerry
Smith, John
Smith, June
ACC-1; GRAZ-5; REC-2; WSA-2
Smith, Earl
Smith, Kiek
Smith, Kyle
Smith, Margaret
Smith, Marie
Smith, Mike
Smith, Peter
ACC-10; ACC-5; GEN-1
Smith, Phillip
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Smith, Raldon
Smith, Randy
Smith, Richard
ACC-2
Smith, Ron and Jana
Smith, Roy
Smith, Sandra
Smith, Scott
GRAZ-5; REC-2
Smith, Sean
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Smith, Sharron
GRAZ-3; REC-2
Smith, Stanley
Smith, Susan
REC-1; REC-8
Smith, Susan
Smith, Terri
Smith, Todd
GRAZ-3; REC-2
Smith, Tony
Smith, Vernon
Smith, Yda
Smithson, John
ACC-2
Smock, Michael
ACC-13; GEN-1; GRAZ-3
Smock, Sharon
REC-13

Smoot, Mike
GEN-1
Smoyer, Charles
ACC-1, 10; WSA-3
Smyth, Dave
ACC-4, 10; WSA-2
Sneva, Toni
GEN-1; GRAZ-5; LAND-1
Snodgrass, Glenda
REC-1
Snopp, Scott
Snorek, Julie
Snow, Darin
Snow, Stanley
Snow, Troy
Snyder, Brian
Snyder, John
Snyder, Ruby
ACC-2
Snyder, Sheldon
Snyder, William
ACC-2
Socha, Walt
GRAZ-1; REC-2; WSA-3
Sochat, Barry
ACC-1, 5; WSA-2
Solano, Marie - Dolores
ACC-13; GEN-1; GRAZ-3
Solis, Suzanne
REC-8
Sollo, Patrick
Soloway, Mahlon
Somkin, Anthony, M.D.
Sorensen, Amy
ACC-2
Sorensen, Bernard and Boys
Sorensen, Brent
Sorensen, Carol
Sorensen, Chadette
Sorensen, D. Stephen
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Sorensen, Fred
Sorensen, Jared
Sorensen, Ken
Sorensen, S.
ACC-13; GEN-1; GRAZ-3

Sorensen, Seldon
ACC-2
Sorensen, Val
Sorenson, Allen
Sorenson, Casey
Sorenson, Eric
ACC-1
Sorenson, Richard
Sorenson, Russell
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Sorenson, Sunny
GEN-1; GRAZ-3; REC-1
Somsen, Colby
Somsen, Troy
Sousa, Michelle
Southam, Leslie
Southwick, Robert
Souvigney, Jeanne-Marie
ACC-10; GEN-5; REC-2
Sowell, Clyde
Sowers, David and Rosella
Spanko, Jeffrey, Ann, Max, Laura
ACC-10; GRAZ-3
Spearman, Steven
ACC-1; GEN-1; LAND-1
Spears, Randy
REC-2
Spelts, Gayle
BIO-1; GRAZ-3; REC-2
Spencer, Boyd
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Spencer, David
Spencer, Derrel
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Spencer, Marjie
ACC-12; GEN-13; GRAZ-5
Spencer, Nicolei
GRAZ-5; REC-2
Spencer, Ray
BIO-5; GRAZ-5; WSA-2
Spencer, Terry
Spencer, Vernon
ACC-5, 12; GEN-1, 13; GRAZ-5;
REC-1
Spenser, Jay
GRAZ-3, 5; REC-2; WSA-3

Sperling, Tamara
ACC-13; GEN-1; GRAZ-3
Spertus, Bob
ACC-10
Spezia, John
ACC-4; GEN-1; GRAZ-3; REC-2;
WSA-2
Spielman, Seth
ACC-1; GRAZ-5; REC-2; WSA-3
Spielmann, Dana
GEN-1; GRAZ-3; LAND-1; REC-2;
WSA-2; WSR-1
Spigarell, Melissa
Spigarell, Robert and Kay
Spiller, R.
Spilier, Robert
Spink, Troy
Spivey, Karl
Spivey, Mike
Spomer, Dan
GEN-7; GRAZ-3
Spoor. Regina and Dale
ACC-1; GEN-1, 5; GRAZ-3; REC-2
Spore, Gargot
GRAZ-1; REC-2
Spotts, Richard
GRAZ-3; REC-2; WSA-2
Spotts, Richard
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Spreitzer, Francis
GRAZ-3; REC-2
Spriggs, Monty
Springer, Paul
Springman, Roger
Sprinkle, G.
Spurr, John
ACC-1; GEN-1; WAT-4; WSA-2
Squillace, Mark
GRAZ-1
Stachowski, Karen
GRAZ-1; REC-2
Staff, Leonard
Staheli, Mary
ACC-1; GEN-1; REC-2
Stahl, Edgar
ACC-13; GEN-1; GRAZ-3

Stahl, J.
Staker, Jack
Stanbury, Marge
ACC-5; LAND-1; REC-2
Standlee, Lassen
Stanger, Garth
Staniforth, Stan
Stanley, Christian
ACC-1, 10; GEN-1; GRAZ-3; LAND-1; REC-2; WSA-2; WSR-1
Stanley, Clyde
ACC-1; REC-2
Stanley, G.
REC-2; WSA-3
Stanley, Jennifer
ACC-1; GEN-1; LAND-1; REC-2
Stanley, Jill
REC-2; WSA-3
Stanley, Patricia
Stapleton, John
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2; WSA-2; WSR-1
Stapley, Charles
Stapley, Richard
Starr, Anthony
GRAZ-5; REC-2
Staton, Audrey
ACC-1; GRAZ-5; REC-2; WSA-3
Stauder, Jack
Stebbins, Robin
Steckel, Eric
GEN-1
Steed, Sam
ACC-2
Steed, Sam
Steel, Curt
ACC-10
Steel, Kathlyn
ACC-13; GEN-1; GRAZ-3
Steele, Delan
Steele, Karin
GRAZ-3, 5; REC-2; WSA-3
Steele, Lindsay
Steele, William
ACC-13; GEN-1; GRAZ-3
Steenblik, Valarie
Steenhof, Karen
REC-8
Steenson, Elaine
GRAZ-3; REC-2
Steffenhagen, Bob
Steger, Michael
ACC-10; WSA-2
Stegner, Michelle
ACC-10
Steichen, David
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-2
Steinhoff, Nadene and Gordon
ACC-1; GRAZ-1, 3, 5
Steinman, Chris
GEN-5; REC-1; WSA-2
Steitz, Jim
Steitz, Marty
GRAZ-1
Stellner, Richard
Stepelton, Kevin
ACC-1; GEN-1
Stephensen, Rex
Stephenson, Chris
GEN-1
Stern, Adam
ACC-1; GEN-1, 5
Stern, Brian
ACC-1; GEN-1, 5
Stern, Marc
ACC-1; GEN-1, 5
Stevens, Earl
REC-1; REC-2
Stevens, Ed
ACC-15
Stevens, Hope and Robert
Stevens, Louis
Stevens, Monique
ACC-10; GEN-1, 5; GRAZ-3; REC-2
Stevens, Thadin
Stevenson, Kenneth
Stevenson, Robert
GRAZ-3; REC-2
Stewart, Alan
Stewart, Bob
GRAZ-3
Stewart, Dorothy
Stewart, Eddie
Stewart, Floyd
Stewart, Jennifer
GRAZ-3; REC-2
Stewart, Kelly
Stewart, Phyllis
ACC-2
Stewart, Rex
Stickler, Robert
ACC-2, 10
Stiles, Tom
GRAZ-3; REC-2
Still, Chris
ACC-10; GRAZ-3; REC-2
Stilwell, James
ACC-1; GEN-1, 5
Stiow, Jeff
Stockberger, Randy
Stocker, Nancy
ACC-1; GRAZ-5; REC-2; WSA-3
Stoddard, Brent
Stoker, Janet
Stoker, R.
Stokes, Lynn
ACC-10
Stokes, Tim
ACC-1
Stoltman, Jan
ACC-13; GEN-1; GRAZ-3
Stoltz, Jim
GEN-5; REC-1
Stone, David
GRAZ-3; REC-2
Stone, Jim
ACC-5; GEN-1; WSA-2
Stone, Ned
GRAZ-3; REC-2
Stone, Vicky
ACC-1; GRAZ-5; REC-2; WSA-3
Stone-Manning, Tracy
ACC-5; GEN-5; WSA-2
Storer, Susan
ACC-13; GEN-1; GRAZ-3
Storer, Suzanne
ACC-1; GEN-1; GEN-5
Stortroen, Ole
ACC-10
Stortroen, Sherry
Story, Dan
Story, Donald
ACC-1; GRAZ-5; LAND-1; REC-2;
WSA-3; WSR-1
Story, Mary
Stowe, David
ACC-1, 13; GEN-1; GRAZ-3;
LAND-1; REC-2; WSR-1
Strader, Lee and Ellen
GRAZ-3, 5; LAND-1; REC-2; WSA-2;
WSR-1
Strain, Clint
Strand, Caitlin
GRAZ-3, 5; REC-2
Strate, Devin
Stratton, Clay
Stratton, LaWayne and Margo
Stratton, Lois
Strauss, George
REC-2
Strauss, Howard
Strdhan, Richard
Streeter, Sally
GRAZ-3; REC-2
Strem, Arielle
Strobel, Joan and Mark
ACC-10; BIO-4; GEN-1, 2, 5, 13;
WSR-3
Strong, Scott
Strong, Valerie
GRAZ-1; REC-2
Stuart, Linda
ACC-1; GRAZ-5; REC-2; WSA-3
Stuart, Rob
ACC-1; WAT-4; WSA-2
Stuart, Wendy
ACC-2; REC-14
Stubbs, Brent
Sturdevant, Mike
Sturgess, Laurie
REC-8
Sublett, George
REC-8
Sublett, Hampton
REC-8

Sublett, Scott
REC-8
Sucec, David
ACC-1; GEN-1; REC-2
Sudnik, Alex
WSA-3
Sudweeks, La Neeta
Sudweeks, Weldon and Carmen
Sugden, Evan
ACC-1; GEN-5; REC-1; WSA-2
Suhay, Regan
ACC-1; GRAZ-5; REC-2; WSA-3
Suits, Butch
Suk, Tom
GEN-1; GRAZ-3; REC-2; WSA-2;
WSR-1
Sullivan, Carol
ACC-2; WSA-2
Sullivan, Edward
GRAZ-1; REC-2
Sullivan, John and Lili
Sullivan, Kim
ACC-1; GRAZ-1, 3, 5
Sullivan, LaMar
ACC-2; GEN-13; GRAZ-3; WSR-3;
WSR-4
Sullivan, Timothy
ACC-13; GEN-1; GRAZ-3
Summer, Baehuu
Summers, Autumn
Sumner, David
Sumner, Greg
GEN-1, 5
Sumner, Robert
GEN-1; REC-2
Sunderland, William
Sundstedt, David
ACC-1; GRAZ-3; REC-2
Susan, Richard
Sussman, Deb
REC-8
Sutherland, Bernie
Sutherland, Ron
Sutliff, David
Sutten, George Jr.
Sutton, Lorraine

Svella, Cathy
ACC-1; GEN-1; GRAZ-1; WSR-1
Swain, Jim
Swain, Patricia
GEN-22
Swaine, Thomas
ACC-1, 5; GEN-22; GRAZ-5; REC-2
Swan, Paul
Swaney, James
LAND-1
Swank, Glen
ACC-9, 14, 15, 16; WSA-3
Swanson, Brian
GRAZ-1; REC-2
Swanson, Frederick
ACC-1; GEN-5
Swanson, John
ACC-1, 10; GEN-1; GRAZ-1;
LAND-1; REC-2; WSA-3; WSR-1
Swanson, Lisa
GEN-5; REC-1; WSA-3
Swapp, Patricia
Swapp, Richard
ACC-2; GEN-1, 13, 15, 43, 44, 45;
GRAZ-3, 5; LAND1, -5; REC-8;
WAT-1, 2, 6; WSR-3
Swartz, Deborah
GRAZ-3, 5; REC-2; WSA-3
Swartz, Lloyd
ACC-2, 8, 10
Swasey, Duane
Swayze, Gregg
ACC-1; LAND-1; WSA-2; WSR-1
Sweat, Kimberly and Kelly
Sweeney, Alice
BIO-1, REC-10
Sweeney, Kevin
GEN-5
Sweet, Charlie
Swenson, David
GEN-13
Swenson, Gordon
ACC-3
Swinehart, Dave
ACC-1; GEN-1; GRAZ-3; LAND-3;
REC-2;
WSA-3; WSR-1

Switzer, Heidy
REC-8
Sykes, Dwane
Symes, Scott and Jean
Symms, William
Syrett, Jenne
ACC-2; REC-1
Syrett, Skyler
ACC-12
Tabish, Dave
Tabish, Jason
Tabone, Gerri
Tabone, Jeremy
Tackett, Kara
GEN-1
Taft, Ann
ACC-1, 10
Takaro, Mark
ACC-1, 10; REC-2
Talbot, Ed
ACC-10; GRAZ-3; REC-2; WSA-3
Tamaroff, Ruth
ACC-1; GRAZ-5; REC-2; WSA-3
Tanner, Jeffery
Tanner, Steven
Tanner, Wesley and Myrle
ACC-10
Tanner, William
BIO-1; GRAZ-3, 5; REC-2, 10
Tatton, Richart
Tatum, Sheree
Taylor, Alice and Harry
Taylor, Daniel
Taylor, Dyanna
ACC-1
Taylor, Frank
ACC-13; GEN-1; GRAZ-3
Taylor, Frank and Marion
ACC-1; GRAZ-5; LAND-1; REC-2;
WSR-1
Taylor, Harold and Christina
ACC-5; GRAZ-3
Taylor, Jack
Taylor, Jeff
ACC-1; GRAZ-5; REC-2; WSA-3
Taylor, Jennifer

Taylor, Melvin
ACC-2; Gen-13, 15; GRAZ-5
Taylor, Michelle
GEN-1, 5
Taylor, Rebecca
ACC-1; GRAZ-5; REC-2; WSA-3
Taylor, Robert
Taylor, Sidney
Taylor, Stuart
ACC-10; WSA-3
Taylor, Suesan
Taylor, Timothy
Taylor, Travis
Teague, Jonathan
ACC-10; GEN-1; GRAZ-3; LAND-1;
REC-2;
WAT-4; WSA-2
Teal, Louise
ACC-1; GEN-1
Teeter, Staphanie
REC-8
Telesetsky, Anastasia
GRAZ-1
Tembrock, William
ACC-1; GRAZ-3; REC-2
Tempel, Douglas
ACC-5, 10; WSA-2
Temple, David
Terebey, Nicholas
Terrel, Lark
GEN-13; GRAZ-5
Terry, Kaye
GRAZ-1; REC-2
Terry, Michelle
GEN-1, 22
Terwillinger, James
Thaden, Bob and Marilyn
ACC-1, 5
Thatcher, Curtis
GEN-1
Thaw, Steve
GRAZ-5; REC-2
Thaw, Steven
GEN-1; REC-2; WSA-2
Thayer, Doug
BIO-4; GEN-5; LAND-1; WSR-1

Theisen, Sven
GRAZ-3; REC-2
Thomas, Barbara
REC-8
Thomas, Bill
REC-2
Thomas, Chris
Thomas, Dan
Thomas, Darrell
Thomas, Dave
Thomas Family
Thomas, J.
Thomas, Jacob
Thomas, John
ACC-13; GEN-1; GRAZ-3
Thomas, Karen
ACC-10; WAT-4; WSA-2
Thomas, Lynn
Thomas, Mike
Thomas, Neil
Thomas, Richard
Thomas, Robert
Thomas, Robert and Ursula
GEN-1; GRAZ-3
Thomas, Verl
Thomas, W.
Thompson, Barbara
REC-2
Thompson, Charles
GEN-1; GRAZ-3; REC-2; WSR-1
Thompson, Chris
Thompson, Chuck
Thompson, Clyde
Thompson, Craig
Thompson, Darwin
Thompson, David
ACC-1, 13; GEN-1; GRAZ-3, 5;
LAND-1;
REC-2; WSR-1
Thompson, David
Thompson, Dixie
REC-1
Thompson, Elaine
ACC-1; GEN-1, 11; LAND-1; REC-2,
8;
WAT-2; WSR-1, 5
Thompson, George

Thompson, Gordon
GRAZ-3; REC-2
Thompson, Greg
Thompson, Guy
ACC-2, 9, 12; BIO-5; GEN-15;
LAND-1
Thompson, Hal
Thompson, Heidi
ACC-2
Thompson, James
ACC-3, 10; BIO-4; GEN-1; LAND-1;
WSA-2; WSR-1
Thompson, Jeff
ACC-13; GEN-1; GRAZ-3
Thompson, Joe
ACC-2
Thompson, Keith
Thompson, Kevin
ACC-1
Thompson, Larry
Thompson, Lydia

Thompson, Marshall
REC-1
Thompson, Nathan
ACC-12
Thompson, Rosa
REC-1
Thompson, Skye
Thompson, Spencer
Thompson, Tom
GEN-1; GRAZ-3; REC-2; WSR-1
Thompson, Tommy
Thompson, Dr. Kent
Thomson, Greg
Thomson, Savannah
ACC-2
Thomupson, Christine
Thorley, Todd
Thorne, Ned
Thornton, Doug
Thuemler, Ron
ACC-1; GRAZ-5; REC-2; WSA-3
Thurgood, Carl
Thurgood, Lewis
Thurgood, Lynda
Tibbitts, Susan

Tidwell, Tony
Tiemen, Tom
Tietz, Tina
ACC-13; GEN-1; GRAZ-3
Tighe, Dennis
GRAZ-5; REC-2
Tillges, Michael
GRAZ-2
Tillinghast, Stephen
Tilton, Buck
ACC-13; GEN-1; GRAZ-3
Tilton, Tim
Timmel, Loren
ACC-2; GEN-13, 15; GRAZ-5
Timmons, Mike and Leslie
ACC-1; GRAZ-1, 3, 5
Tinklefaugh, John
GRAZ-3; REC-2
Tipping,Terri
ACC-1; GRAZ-3; WSA-3
Tisdale, Loran
Toback, Andrea
GRAZ-1; WSA-3
Tober, Jeff
Togerson, Justin
Toilike, George and Teri
Tol, Tony
ACC-1; GRAZ-1; REC-2
Tolladay, Joanne
GEN-5; GRAZ-3; WAT-4
Tomicek, Paul
Tomlinson, Trent
Tomshack, Gary
Toombs, Suzanne
Toothaker, Virgil
REC-8
Torbett, Glenn
GEN-5; WSA-2
Torgerson, Dan
ACC-2; GEN-13, 15; GRAZ-5
Torgerson, Rick and Heather
Torgerson, Terry
Torgerson, Troy
Tork, Marcus
ACC-1; GRAZ-5; REC-2; WSA-3
Tornborn, Jeff
Torrisi, Gene

Tousley, Walt and Ruth
Toyn, Gary
Trautvein, Jens
Trearse, A. R.
GRAZ-1; REC-2
Trefonas, Jason
ACC-1; GEN-1; GRAZ-3; LAND-1;
WSA-2; WSR-1
Trejillo, Jesus
Trent, Barry
Trimble, Stephen
ACC-1; GEN-1; REC-2
Trialo, Phil
ACC-1; GEN-1, 5
Triplett, Eric
Trotter, John
ACC-1
Trowell, Clark
GRAZ-3; REC-1, 2
Troxel, Jeff
ACC-1; WSA-2
Truax, Wayne
ACC-13; GEN-1; GRAZ-3
Truex, Ted
GRAZ-3; REC-2
Trumbull, Lucy
REC-8
Tryon, Fred
Tsegi, Coral
GRAZ-3; REC-2
Tseng, Alice
GRAZ-3; WSA-3
Tucker, Dean
Tucker, George
Tucker, George
Tucker, Jeanne and Donald
Tucker, Lynn
Tucker, Pat
Tucker, Patrick
Tucker, Roger and Pamela
GRAZ-1; REC-2; WSA-3
Tueller, Paul
Tuff, Paul
GRAZ-3; REC-2; WSA-3
Tuggle, Melissa
Tuke, Carla
ACC-5; GEN-5; WSA-3

Tull, Mary
GRAZ-3; REC-2
Tulley, Tara
GEN-1, 22
Tullis, Lesley
ACC-10; REC-2; WSA-2
Tuma, Gary
ACC-13; GEN-1; GRAZ-3
Turner, Brad
Turner, Frank
GEN-5
Turner, Michael
GEN-1, 22
Turner, My
Turner, Victor
Turpin, Pete and Nancy
ACC-10; WSA-3
Tuttle, Dell
Twitchell, Cole
Twitchell, Kam
ACC-2
Twitchell, Lamonte
ACC-5; GEN-1, 13; GRAZ-5; REC-1
Twitchell, Nancy
ACC-5; BIO-5; GEN-1; WAT-2
Twomey, Ryan
ACC-5; GEN-5; WSA-2
Tyler, John
Udall, Brad
Udy, Rick
Uhlmann, Anne
GEN-5
Ullery, Susan
ACC-1
Ulvang, Myra
GRAZ-3; REC-2; WSA-2
Ulyate, Holly
REC-8
Urness, Jane
ACC-1; GRAZ-5; REC-2; WSA-3
Underwood, Cathy
GRAZ-3; REC-2; WSA-3
Underwood, Steve
Updike, Mary
Upwall, Gregory
REC-2
Utley, Cheryl
Utley, Jeff
Vagle, Beth and Wade
GEN-1, 22
Vail, Sandra
GEN-5; REC-1
Valdez, Bernice
GRAZ-3; REC-2
Valdez, Connie and Larkey
Valentine, Janet
BIO-1
Vali, Rita
ACC-1, 5; REC-1
Vallone, Cheryl
ACC-1, 13; GEN-1, 23; GRAZ-3, 5;
LAND-1;
REC-2; WSA-3; WSR-1
Van Buren, Renee
ACC-1
Van Every, Marsha
GRAZ-5; LAND-1; REC-2; WSR-1
Van Genderen, Heidi
Van Hann, James
GEN-3
Van Hook, Chris
Van Horn, Paul
ACC-12; REC-1
Van Hove, Teresa
Van Leuven, Ross
Van Ord, Autumn
ACC-1, 10; REC-2; WSA-2
Van Summer, Mark
Van Summern, Gayle
ACC-1; GRAZ-5; REC-2; WSA-3
Van Wagoner, Tim
Vanatta, Yeffi
ACC-1; GEN-1; GRAZ-1
Vanderbie, Jan
GRAZ-3; REC-2
VanDerhyden, Clifford
ACC-7
Vane, Joe
Vanko, Peter
Vaslet, Paul
ACC-1; GRAZ-1, 3, 5
Vaughan, Steve
Vaughn, Henry
REC-8
Vaughn, Katie
REC-8
Vdovin, George
ACC-1, GRAZ-5; WSA-3; WSR-1
Veasman, Jean
Vectola, Dermas
Veidmark, Aaron
Veidmark, Abe
Vengas, Ronaldo
ACC-1; GRAZ-5; REC-2; WSA-3
Veranth, John
Verdoorn, Heather
ACC-2
Vernon, Ann, Patrick and Charles
GRAZ-1; REC-2
Vernon, John
GRAZ-3; REC-2
Verzelle, Liza
BIO-1; GRAZ-3; REC-2, 10
Vesco, Richard
Vetter, Jack
Viavant, Bill
GEN-1
Vick, Eckhard
Vignere, Joel
ACC-10; GEN-1, 11; GRAZ-3; REC-2,
8; WSR-1
Vignere, Joel
ACC-1
Viles, Aaron
GRAZ-5
Villaggio, Chris
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Vincent, Douglas
ACC-1; GEN-1, 5, 11; GRAZ-3;
LAND-1;
REC-2; WSR-1, 2
Vincent, George
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Vincent, Shirley
ACC-1; GEN-1, 5, 11; LAND-1;
REC-2; WSR-1
Vincent, Thomas
Visor, Bill
Vodraska, Adrienne
Voelkel, Ron
ACC-1; GRAZ-5; REC-2; WSA-3
Vogel, William
ACC-10
Vogler, Glen
Voigt, Linda
REC-1, 8
Vondrak, Andrew
Voorhies, Bill and Marilyn
BIO-1; GEN-5; GRAZ-3; REC-2;
WSA-3
Vos, Biefke
ACC-13; GEN-1; GRAZ-3
Voss, Rene
ACC-1; GRAZ-1
Wachenheim, Scott and Beth
GRAZ-1; REC-2, 8
Wade, Catherine
ACC-1; GRAZ-5; REC-2; WSA-3
Wade, Christopher
Wadsworth, Fred
Wadsworth, Shelly
Wagener, Jefferson
GRAZ-5; REC-2
Wagner, Chris
GEN-1, 22
Wagner, Karin
ACC-13; GEN-1; GRAZ-3
Wagner, Terry
REC-1, 8
Wagner, Tim
ACC-1; GRAZ-1, 3, 5
Wagstaff, D.
Wahl, John
ACC-1, 10; GEN-1, 5; GRAZ-3;
REC-2
Wahlstedt, Bob
Waite, Paul
GEN-1
Wakeland, W.M.
GRAZ-3; REC-2
Wald, Michael
GEN-1; GRAZ-3; WAT-4
Waldman, Stephen
ACC-1; GRAZ-1
Walke, Jim
GEN-5; GRAZ-3; REC-2

Walkenhorst, Jared
ACC-1; GRAZ-5; REC-2; WSA-3
Walker, Curt
GEN-1
Walker, Ellen
GEN-7
Walker, Faith
GRAZ-3; REC-2
Walker, John
ACC-3; GEN-1
Walker, Karl
Walker, Kent
Walker, Martin
Walker, Roger
Walker, Theresa
Walker, Tom
ACC-1; GEN-1, 5
Wall, Cory
Wall, Kenneth
Wall, Toni
Wallace, Anne
Wallace, Carleen
GEN-1
Wallace, Gerald
GRAZ-1; REC-2; WSA-2, 3
Wallace, John
Wallace, Leslie
GEN-1, 5, 11; GRAZ-3; LAND-1;
WSR-1
Wallace, Robert
ACC-1, 10
Wallen, Norm
GRAZ-3; REC-2
Wallner, Jack
LAND-1; REC-2
Walls, Barbara
GRAZ-3; REC-2
Walschlager, Gerard
ACC-13; GEN-1; GRAZ-3
Walsh, David
ACC-1; GRAZ-5; REC-2; WSA-3
Walter, Debby
ACC-1; GEN-1, 5
Walter, Leo
ACC-10; REC-2
Walter, Marilyn
ACC-1; GEN-5; GRAZ-5
Walter, Sydney
GRAZ-1; REC-2
Walters, Ralph
Walton, Bryon
ACC-13; GEN-1; GRAZ-3
Walton, Sam
REC-2; WSA-2
Walton, Virginia
Warble, Steve
ACC-1; GEN-1, 23; LAND-1; REC-2;
WSA-3; WSR-1
Ward, Bertha
Ward, Clarence
Ward, Clyde
Ward, Craig
ACC-13; GEN-1; GRAZ-3
Ward, Eleanor
ACC-1; REC-2
Ward, Everett (Chip)
ACC-1; GRAZ-1
Ward, Jill
ACC-1; WSA-3
Ward, Ronald
Wardell, John
ACC-1; GRAZ-5; REC-2; WSA-3
Warmaki, Jerralyn
Warmaki, Keith
Warmaki, Nicki
Warmaki, Randy
Warnell, Ronald
ACC-1; GRAZ-5; REC-2; WSA-3
Warner, Barbara
GRAZ-3; REC-2; WSA-3
Warner, Jeff
Warner, Weston
Warnick, Kyle
Warnick, Scott
Warren, Dean and Susan
ACC-1; GRAZ-1, 3, 5
Warren, Scott
Warren, Weston
Wasinger, Korrinne
ACC-1; GRAZ-5; REC-2; WSA-3
Watkins, Kenny
Watkins, Nancy
GEN-5; REC-1; WSA-2
Watkins, Paula
ACC-1; GRAZ-1, 3, 5
Watkins, Richard and Paula
ACC-1; GRAZ-1, 3, 5
Watson, Alan "Mac"
GEN-1; LAND-1; WSA-2
Watson, Jack
Watson, John
ACC-1; GEN-1
Watson, Kent
Watson, Robert
Watson, Wes
Watters, Brian
Watts, Bob
Watts, Don
Watts, Michael
Watts, Susanna
ACC-7
Way, Bonnie
REC-8
Way, Susan
BIO-4; GEN-1, 2, 30; GRAZ-1
Weathers, Mary
GEN-5; REC-1
Weaver, Joe
Weaver, Lu
Webb, Brian
Webb, Dixie
Webb, Forrest
Webb, Jeff and Michaela
GEN-5; REC-2; WSA-2
Webb, Kent
ACC-1; GRAZ-1, 3, 5
Webb, Rob
ACC-13; GEN-1; GRAZ-3
Webber, Jackie
WSA-2
Weber, Bret
Weber, John
GRAZ-3; REC-2
Weberg, Bill
GRAZ-3, 5; REC-2; WSA-3
Webster, John
ACC-1; GEN-1; GRAZ-3; LAND-1;
REC-2; WSA-2; WSR-1
Wechter, Rita
REC-2
Weeden, Catherine
ACC-13; GEN-1; GRAZ-3
Weeks, Cynthia
ACC-13; GEN-1; GRAZ-3
Weeks, David
Weeks, Ken
ACC-1; GRAZ-1
Weeks, L.E.
GRAZ-1; REC-2
Weickhardt, Kathleen
Weide, Bruce
Weidl, Dick
Weikamp, Babara
GRAZ-3; REC-2
Weinstock, Mrs. Robert
ACC-1; GRAZ-3; LAND-1; REC-2
Weintrauch, Marc
GEN-1; GRAZ-3; REC-1, 8
Weirick, Bob
GRAZ-1; REC-2
Weis, Paul
ACC-1, 3; GEN-1; GRAZ-3; LAND-1;
WSA-2
Weisberger, David
ACC-13; GEN-1; GRAZ-3
Weiss, John Jr.
Weissman, Eric and Barbara
GEN-1; REC-2
Weissman, Kerry and David
GEN-1; GRAZ-3; REC-2; WSA-2;
WSR-1
Weithauf, Paul Sr.
ACC-10
Welch, Marge
Welcher, Kenneth
Welder, Bill
ACC-10
Welder, Chris
ACC-10
Welder, Dean
ACC-2
Welder, John
ACC-10
Welder, Karen
ACC-10
Welder, Leila
ACC-2

Welder, Leonie
ACC-10
Welder, Peggy
ACC-10
Weller, Ben
ACC-2
Weller, Fae
Wells, Darrell
Wells, Tom and Becky
ACC-2
Wemple, Bob
ACC-1, 5; WSR-1
Wende, Mike and Judy
ACC-13; GEN-1; GRAZ-3
Wendling, Kathy
ACC-1; GEN-1; GRAZ-3, LAND-1;
REC-2; WSA-1; WSR-1
Wendt, Sharon
GEN-1; REC-1
Wengreen, Earl
Werdinger, Leon
Werkmeister, Mark
ACC-2, 15
Wescott, D
ACC-5, 8, 18
West, Fay
Westcott, Kenneth
ACC-2
Westendorf, Dr. Craig
ACC-1; REC-1
Westerman, Peter
ACC-1
Westervelt, Dean
Weston, Dan
Weyers, Lori
ACC-1, 10; REC-2, WSA-3
Whalen, Kim
GRAZ-1; REC-2
Whalley, John
Whatcott, Gayle
Wheat, Francis
ACC-1; REC-8, WAT-2, WSA-2
Wheatley, Margaret
REC-2
Whedbee, Donna
GRAZ-1; REC-2
Wheeler, George
Wheeler, J
ACC-13; GEN-1; GRAZ-3
Wheeler, Scott
Whern, John
Whitaker, Howard
ACC-5; GEN-1, 5; GRAZ-3; REC-2,
WSA-2; WSR-1
Whitaker, Jason
White, Alan
GEN-1; REC-2
White, Angela
White, Greg
White, Gregg
White, Jerry
ACC-1; GRAZ-5, REC-2, WSA-3
White, Joann
REC-8
White, Lance
White, Lonnie
GRAZ-3, REC-2
White, Melvin
White, Polly
ACC-18; GEN-1, 13
White, Randall
ACC-13; GEN-1; GRAZ-3
White, Robert
White, Sheri and Debbie
ACC-5; GEN-1; GRAZ-5, REC-1
Whitehead, Dennis
ACC-5; REC-1
Whitehead, Ron
Whitehorn, Robert
ACC-2
Whiteley, Gary
Whiting, Nicole
ACC-1; GRAZ-5, REC-2, WSA-3
Whiting, Robert
Whitley, Scott
ACC-1, 10; REC-2, WSA-2
Whitman, David
WSR-1
Whitney, Holly
WSA-3
Wickel, Don
Wickham, Leslie Jr.
Wickliffe, C.
ACC-2
Widoff, Bill
GRAZ-1; REC-2
Wiedenhoeft, Dody
Wieder, Mark
Wiener, Howard
ACC-1; GEN-1, 5
Wiggill, Steven
Wignall, Jerry and Lena
Wilcock, Russ
Wilcox, Bob
Wilcox, Richard
Wilde, Brett
Wilde, Danny
Wilde, Randy
Wilde, Wendell
Wiley, Alynne
ACC-1; GEN-5
Wilke, John
ACC-13; GEN-1; GRAZ-3
Wilkes, Gary
Willard, Page
ACC-5; GEN-1, 13; GRAZ-5, REC-1
Willard, Rudy
Willardson, Timothy
Williams, David
GRAZ-1
Williams, D
Williams, Delvin
Williams, Dennis
Williams, Jay
Williams, Lance
Williams, Lance
ACC-5; GEN-5
Williams, Lesley
GRAZ-3, 5; REC-2
Williams, Mark
ACC-10
Williams, Robert
ACC-9, 14, 15, 16; WSA-3
Williams, Robert
REC-8
Williams, Roger
ACC-1; GRAZ-3, REC-2, WSA-2
Williams, Sally
GRAZ-3
Williams, Thomas
Williams, Troy
Williams, Wesley
Williamson, Peter
GRAZ-3; REC-2
Wilson, Bob
Wilson, Brad
Wilson, Brett
GEN-1; REC-2
Wilson, Charles
ACC-10
Wilson, Chris
ACC-10; GEN-1; WSA-2
Wilson, Howard
ACC-13; GEN-1; GRAZ-3
Wilson, Jack
ACC-2
Wilson, James
GEN-5
Wilson, Joel
Wilson, Leslie
ACC-1; GEN-1, 5
Wilson, Lonnie
REC-8
Wilson, Mark
ACC-1
Wilson, Mindy
WAT-4; WSR-1, 4, 6
Wilson, Patricia
ACC-2
Wilson, Pete and Amelia
Wilson, Robert and Karen
GRAZ-3; REC-2
Wilson, Ronald
ACC-2
Wilson, Russel
Wilson, Sherrill
GRAZ-5; REC-2
Wilson, Tim
REC-1, 2
Winward, Hank
ACC-10; GEN-1; LAND-1; WSR-1
Windley, C. Jack
Wingerter, Eric
ACC-1; GEN-1; GRAZ-3, WSR-1
Winkler, James
Winn, Elizabeth
GRAZ-3; REC-2
Winn, Steven

280

Winsemius, Aurelia
ACC-1, 10; GEN-1; GRAZ-3; REC-2, 7
Winsett, Oliver
ACC-13; GEN-1; GRAZ-3
Winters, Steve
ACC-1; GRAZ-5; REC-2; WSA-3
Winward, LaMar
Wirth, Randolph
Wiscombe, Stephen
Wise, Liz
GRAZ-5
Wiseman, Mollie
GEN-5
Wisemen, Virginia
Wiss, Carrie
ACC-1; GEN-1; REC-2
Woffinden, Jeron
Wolf, Mark
ACC-2
Wolf, Mike
ACC-1; GEN-1
Wolfe, Don
ACC-1; GRAZ-5; LAND-1; REC-2; WSR-1
Wolfe, Gene
GRAZ-3; REC-2
Wolfgaman, Mavna
Wolking, Corell
ACC-1; BIO-1
Won, Yhoumey
ACC-13; GEN-1; GRAZ-3
Wong, Jeffrey
GEN-1, 22; WSA-2
Wood, Blake
ACC-1; GRAZ-5; REC-2; WSA-3
Wood, Dan
Wood, Don
Wood, Donalo and Margaret
ACC-1; GEN-5; REC-1
Wood, Gordon
Wood, Heather
Wood, Lester
ACC-1; GEN-1; GRAZ-3; REC-2
Wood, Maynard
GRAZ-3; REC-2
Wood, Peggy
ACC-1; GRAZ-1, 3, 5
Woodard, Victoria
ACC-10; BIO-4; GEN-1
Woodhouse, Tom
Woods, Darrell
Woods, James
GEN-1; GRAZ-4; WSA-2
Woodward, Dian
Woodward, Jewell
GRAZ-3; REC-2
Woodward, Mary
GEN-5; REC-1
Wooton, Charles
Worssam, Geoffrey
Worthen, Ellis
Wouddowski, Lora
Wozny, Kirsten
GRAZ-5; REC-2
Wren, Vicky
Wright, Clay
Wright, David
GEN-5; REC-1; WSA-2
Wright, Denise
ACC-13; GEN-1; GRAZ-3
Wright, Kris
REC-8
Wright, Norman
Wright, Pearl
Wright, Rhonda
Wright, Ricky
Wright, Stephen
Wright, Terry
Wright, Tony
ACC-7
Wuerthner, George
ACC-1, 10; GRAZ-1, 3; REC-2
Wulfenstein, Bevan
Wybeng, Ken
REC-2
Wycklendt, Anne
Wyeth, George
ACC-13; GEN-1; GRAZ-3
Wyeth, Nathan
ACC-1; GEN-1; LAND-1; REC-2; WSA-2
Wyhlie, B.
Wynn, Daniel and Cindie
ACC-2
Wysopal, George
GEN-16
Wyss, Mitch
ACC-10; REC-2
Yaffe, Linda
GRAZ-3; REC-2
Yardley, Russell
Yates, Jeff
ACC-2
Yates, Marlin
Yaur, Cameron
Yazzie, Jane
ACC-1, 10
Yeager, Jodie
Yegian, Jeff
GEN-5; REC-1
Yehle, Fran
ACC-10
Yeske, Allen
Yewell, Susan
GRAZ-1, 3; REC-2; WSR-1
Yiker, Jonathan
GRAZ-3; REC-2
Young, Allen
Young, Bonita
REC-8
Young, Brett
Young, Carl
ACC-1; GEN-1; WSR-1
Young, Dick
ACC-2, 8
Young, Dick
ACC-14
Young, Gene
Young, Hugh
ACC-1, 5; GRAZ-3; REC-2
Young, James and Daisy
Young, Jason
Young, Larry
Young, Marilyn
Young, Pamela
GEN-1, 13; GRAZ-5
Young, Paul
Young, Richard
Young, Stan
Young, Susan
ACC-1
Younger, Ronald
ACC-1; BIO-4; GRAZ-5; WAT-4
Zadis, Peter
REC-2
Zadis, Peter
REC-2; WSR-1
Zaffino, Lynda
REC-1, 4
Zane, Janis
ACC-13; GEN-1; GRAZ-3
Zarkovich, Josephine
GEN-1
Zaugg, Jared
Zebell, Margie
ACC-1; GEN-1; GRAZ-3; LAND-1; REC-2; WSA-2; WSR-1
Zebell, Margie
ACC-13; GEN-1; GRAZ-3
Zehrbach, Thomas
Zeigler, Robert
Zeoli, Len
GEN-5; GRAZ-5; REC-2
Ziler, Larry
ACC-1
Zimmerman, Kyle
Zinn, Robert
ACC-13; GEN-1; GRAZ-3; REC-2
Zinsli, Gabriel
Zobell, Cory
Zoller, Hillary
ACC-1; GRAZ-5; REC-2; WSA-3
Zollinger, Jim
Zufelt, Bob
Zufelt, Sandy
Zumwalt, Glen
Zumwalt, Judy

There were 149 names from comment letters that could not be read. The comments from those letters were reviewed and categorized as described above.

COMMENTS AND RESPONSES ON THE DRAFT MANAGEMENT PLAN

This section contains the comments received from individuals, organizations, and governmental agencies during the comment period for the DMP/DEIS. The comments are organized by the nine categories discussed previously. Following each comment is the BLM's response.

ACC-1

COMMENT: An array of comments were submitted on all-terrain-vehicle (ATV) use ranging from "prohibit all non-street legal ATV and dirt bike use" to "allow non-street legal vehicles," and "clarify the difference between street legal and non-street legal vehicles."

RESPONSE: Any motor vehicle properly registered for highway use is considered street legal. In Utah, ATVs cannot get safety inspections, so they cannot be registered for highway use. ATVs are considered an all terrain vehicle type 1, which is a motor vehicle 50 inches in width or smaller, weighing 700 pounds or less, having 3 or more low pressure tires, having a seat designed to be straddled by the operator, and designed for travel over unimproved terrain.

The management of ATVs is described in detail in the **Transportation and Access** section in Chapter 2 of this Plan. Because use of ATVs off designated routes has the potential to damage Monument resources, their use off of designated routes would be prohibited throughout the Monument. Specific routes which could be used by non-street legal vehicles are shown on Map 2.1.

ACC-2

COMMENT: Why can't all existing routes remain open, including the Paria River/Sheep Creek route?

RESPONSE: A number of routes are proposed for closure in this Plan in order to protect Monument resources. It has been determined that the access needs of the surrounding communities and the needs of the users of the Monument can be met by the transportation network in this Proposed Plan. Leaving all routes and trails open could jeopardize the integrity of the resources which the Monument was designated to protect. In particular, allowing vehicle use in the Paria River/Sheep Creek route has the potential to damage riparian resources which comprise less than 1 percent of the Monument and provide crucial habitat for nesting birds and vertebrates in the area. However, many routes would remain open in this Proposed Plan. Map 2.1 shows the routes that would be open for public use and those available for administrative use only.

ACC-3

COMMENT: How is the BLM going to monitor vehicle use in the backcountry, including enforcement?

RESPONSE: In order to monitor vehicle use, additional staff, including law enforcement personnel, would be hired to patrol by foot, horse, and vehicle. In addition, the BLM would be proactive in providing information to visitors about which routes are open. Refer to the **Enforcement** section in Chapter 2 of this Plan for more information on the enforcement strategy.

ACC-4

COMMENT: An array of comments were submitted on ATV use, ranging from "ATVs should be banned or limited to smaller areas" to "ATVs should be allowed on more routes."

RESPONSE: As stated in the **Transportation and Access** section in Chapter 2 of this Plan, the unregulated use of off-highway vehicles (OHV) (both street legal and non-street legal) off of designated routes has the potential to damage Monument resources, cause recreation conflicts, and cause erosion. Therefore, cross-country travel by motorized vehicles, as well as mountain bicycles, would be prohibited. The use of ATVs has been allowed on most routes designated for motorized vehicles, except those where state or local laws prohibit their use, where the anticipated volume and speed

BEST COPY AVAILABLE

of larger vehicles makes ATV use unsafe, or where conflicts with adjacent land management agencies may occur.

ACC-5

COMMENT: Explain the administrative use policy for access and who can use these routes. How will exceptions to motorized access be determined?

RESPONSE: As stated in the **Administrative Routes and Authorized Users** section in Chapter 2 of this Plan, the BLM would be responsible for administrative routes which would be limited to authorized users. Authorized users could include grazing permittees, researchers, state or Federal agency personnel, and others carrying out authorized activities under a permit or other authorization. Administrative routes are existing routes that lead to developments where the BLM or some permitted users must have regular access for operation or maintenance. These authorized developments include such things as powerlines, cabins, weather stations, communication sites, spring developments, corrals, and water troughs. Access on these administrative routes would be strictly limited and would only be granted for legitimate and specific purposes. Beyond the routes shown on Map 2.1 of this Plan, the BLM would work with any individual operating within the Monument under existing permits or authorizations to document where access must continue in order to allow operation of their permit or authorization.

As stated in Chapter 2 and ACC-20, limited exceptions to the general management provisions (including off-highway vehicle use) could be granted by the Monument Manger for emergencies or where clearly essential to serve Monument management purposes.

ACC-6

COMMENT: Research opportunities may be curtailed due to route closures. Are there provisions for special vehicle access for researchers? How would exceptions for researchers be made in general?

RESPONSE: In general, researchers would be required to comply with access restrictions outlined in this Plan (i.e., travel on designated routes). The BLM recognizes that some research opportunities may need to be accessed via means other than vehicles. Except where specifically prohibited (e.g., relict plant areas), the BLM would evaluate exceptions to access restrictions during the special-use permitting process for extremely high-value research opportunities as described in the **Management of Science and Research Activities** section in Chapter 2 of this document. The BLM would evaluate whether the proposed research could be permitted in a manner consistent with the protection of Monument resources, and whether the methods (and access) proposed are the minimum necessary to achieve the desired research objective.

ACC-7

COMMENT: How does the Plan address the American with Disabilities Act (ADA) and what, if any, accommodations does the BLM intend to make so that people of all abilities can experience the Monument?

RESPONSE: The BLM will comply with the ADA in the Monument. Both the DEIS and this Plan would provide access for people of all abilities and facilities in the Frontcountry Zone. However, the ADA does not prohibit the BLM from restricting travel routes or closing areas to vehicles in order to protect Monument resources.

ACC-8

COMMENT: Various people requested that specific routes be kept open or be closed. General comments that routes should be closed were also received.

RESPONSE: Every individual request for keeping specific routes open or closed was reviewed and evaluated by the BLM, and a determination was made on their status for this Plan. Each request was evaluated on the basis of the considerations stated in the **Transportation and Access** section in Chapter 2 of this Plan. The basic philosophy in deciding which routes would be left open was to determine which routes access some destination (e.g., scenic overlook, popular camping site, heavily-used thoroughfare), and present no significant threat to Monument resources. Routes that were not considered necessary or desirable (for resource protection purposes) would not be kept open for public access.

ACC-9

COMMENT: Why was there no transportation map for Alternative A in the DEIS? Why was there no inventory of existing routes?

RESPONSE: Alternative A (No Action Alternative) in the DEIS describes current conditions. A transportation map was not included for this alternative in the DEIS because a comprehensive inventory of routes in the Monument has not been conducted. The route data (2,176 miles) reported for Alternative A are based upon United States Geological Survey (USGS) topographic maps prepared in the 1970s. These data were supplemented by BLM specialists based on personal knowledge, BLM Surface Management Status Maps, Forest Service Cartographic Feature Maps, and other information available at the time. None of these sources was considered to reflect the complete status of the routes within the Monument. Therefore, a map displaying these routes was not included in the DEIS because the data have not been verified and are likely to include errors. Given that a comprehensive route inventory would have delayed the development of this Plan considerably, and that the USGS route data, as modified, were the best available data, the BLM decided to proceed using the 2,176 miles of routes as a best estimate. The Environmental Consequences section of the DEIS used this data to describe the relative impacts from the transportation networks in each alternative. This analysis has been supplemented as described in ACC-14. A map displaying the route network for Alternative A is not considered necessary to this analysis. A precise route inventory was also not necessary for the BLM to develop its proposed transportation network. As described in the **Transportation and Access** section in Chapter 2 of this Plan, the transportation network was based on analysis of which routes access necessary or desirable destinations (based on existing knowledge and public input) and which routes present no significant threat to Monument resources. The BLM, after public comment, has concluded that for the proper care of Monument resources, remaining routes that were not considered necessary or desirable would be closed.

ACC-10

COMMENT: What is the justification/authority for closing routes? The BLM cannot close routes because many are RS 2477 assertions. What happens to the routes that are not designated open? How will enforcement of these closures be handled?

RESPONSE: This Plan closes all routes, unless the BLM designates a route open or unless a Federal Land Policy and Management Act (FLPMA) Title V right-of-way is granted which would allow limited use of a route by the permitted party (43 USC sections 1761-1771). The authority for this action is FLPMA, sections 102(a)(8), 202, and 302 [43 USC sections 1701(a)(8), 1712 and 1732]. This authority is subject to valid existing rights (VER), including valid RS 2477 claims, which would be determined on a case-by-case basis. The BLM will exercise its authority to close routes after compliance with the FLPMA land use planning process found at 43 USC 1712 (regulations found at 43 CFR Part 1600) and NEPA (42 USC section 4321-4345).

As soon as this Proposed Plan is formally approved, all routes not on the transportation system (Map 2.1) would be considered closed. A discussion of the enforcement strategy can be found in the **Enforcement** section in Chapter 2 in this Plan.

ACC-11

COMMENT: Allow for maintenance and construction of new trails in all zones as long as there are no impacts.

RESPONSE: A range of trails could be developed for a variety of purposes, as stated in the **Facilities** section in Chapter 2 of this Plan. In the Frontcountry Zone, a full range of trails could be developed and maintained in order to provide opportunities for visitors or to protect Monument resources. In the Passage Zone, trails could be developed and maintained where needed for protection of Monument resources, for public safety, or to interpret Monument resources. Focusing the development of new trails to provide visitor opportunities in the Frontcountry and Passage Zones is part of the overall strategy to protect resources by directing developed recreational opportunities to the periphery of the Monument. Elsewhere, trails could only be developed or maintained where necessary to protect Monument resources.

ACC-12

COMMENT: How will routes be maintained, and how will safety be handled? Various comments were submitted on route maintenance, ranging from requests to pave or upgrade certain routes to requests not to upgrade any routes.

RESPONSE: Each comment on route maintenance was considered in developing a maintenance strategy. The BLM is not proposing to pave any routes within the Monument. Refer to the **Maintenance** section in Chapter 2 of this Plan for a discussion of the proposed maintenance levels. Safety is an important concern on routes within the Monument. Many techniques such as speed limits, warning signs, and repair of washout prone areas would be used to promote safe use of routes.

ACC-13

COMMENT: There were various comments that addressed the impact analysis in relation to OHV and the transportation networks for the alternatives. These included:

A. Analysis of leaving roads open and closing roads was not provided in the DEIS, including the justification of administrative routes.

B. The analysis provided in the DEIS only covers impacts from OHV use and does not take into account impacts from increased visitor activities such as hiking and backpacking.

C. The DEIS was inaccurate is stating that impacts of vehicles on relict plant communities would be the least in Alternative D.

RESPONSE:

A. Leaving open existing routes is a current condition and not an action under this Plan. The only route actions being considered are route closures, which differ by alternative in the DEIS. The impacts of those closures were discussed in Chapter 4 of the DEIS and in Chapter 3 of this Plan. In response to public comment and new information, additional analysis of routes in relation to Monument resources has been completed and is provided in ACC-14. This additional analysis, and the analysis in this Plan, includes impacts from administrative routes on various resources. More information concerning administrative routes is provided in ACC-24.

B. The analysis in the DEIS does include a discussion of impacts from activities other than OHV use on Monument resources. All actions which cause surface disturbance, such as OHV use and visitor use, have the potential to impact Monument resources as discussed in Chapter 4 of the DEIS and in Chapter 3 of this Plan. Both the DEIS and this Plan include discussions of surface disturbing activities that would contribute to impacts on these resources. A reduction of these surface disturbing activities would therefore have the potential of reducing impacts to these resources. Although not all impacts can be attributed to damage from surface disturbing activities, the reduction of these activities in the Monument would contribute to the protection of these resources.

C. The DEIS incorrectly states that impacts to relict plant communities from vehicles would be the least in Alternative D. In fact, none of the alternatives should have projected impacts from vehicles since there are no routes in known relict plant communities. There are routes within ¼ mile of relict plant communities and a discussion of these impacts can be found in Chapter 3 of this Plan. Additionally, a comparison of the DEIS alternatives in relation to relict plant communities and routes can be found in ACC-14.

ACC-14

COMMENT: Why were the impacts of routes on Monument resources not spatially analyzed?

RESPONSE: In response to public comment and new information, more detailed analysis in relation to transportation has been completed for this Plan and is provided in Chapter 3. Additionally, this analysis has been completed for each of the alternatives in the DEIS and is provided in the table below. The relative impact of the alternative transportation networks reported here differs slightly from the relative impacts of the alternatives reported in the DEIS. This is because this analysis is based on more specific aspects of transportation impacts. This would not change the overall relative impact of the alternatives reported in the DEIS, because transportation is only one component of the overall impact analysis. The miles of designated routes in each of the alternatives are provided at the end of this table for comparison purposes.

Resource		Alternative A (no action)	Alternative B (preferred)	Alternative C	Alternative D	Alternative E
Paleontological resources		334 recorded sites within ¼ mile of routes	236 recorded sites within ¼ mile of open routes 76 recorded sites within ¼ mile of admin. routes	235 recorded sites within ¼ mile of open routes 27 recorded sites within ¼ mile of admin. routes	214 recorded sites within ¼ mile of open routes 5 recorded sites within ¼ mile of admin. routes	298 recorded sites within ¼ mile of open routes 8 recorded sites within ¼ mile of admin. routes
Archaeological and Historic resources		1,128 recorded sites within ¼ mile of routes	550 recorded sites within ¼ mile of open routes 126 recorded sites within ¼ mile of admin. routes	662 recorded sites within ¼ mile of open routes 72 recorded sites within ¼ mile of admin. routes	441 recorded sites within ¼ mile of open routes 24 recorded sites within ¼ mile of admin. routes	799 recorded sites within ¼ mile of open routes 16 recorded sites within ¼ mile of admin. routes
Special status plant species	Jones' cycladenia	no routes within 0.3 miles	no routes within 4 miles	no routes within 7 miles	no routes within 7 miles	no routes within 0.5 miles
	Kodachrome bladderpod	0.18 miles of open route through population	0.15 miles of admin. route through population	0.18 miles of open route through population	0.18 miles of open route through population	0.18 miles of open route through population
	Ute ladies'-tresses	Burr Trail crosses, but no OHV use	Burr Trail crosses, but no OHV use	Burr Trail crosses, but no OHV use	Burr Trail crosses, but no OHV use	Burr Trail crosses, but no OHV use

BLANK PAGE

Resource		Alternative A (no action)	Alternative B (preferred)	Alternative C	Alternative D	Alternative E
Relict plant communities and hanging gardens		No routes in relict plant communities 861 acres within ¼ mile of routes	No routes in relict plant communities 379 acres within ¼ mile of open routes 92 acres within ¼ mile of admin. routes	No routes in relict plant communities 438 acres within ¼ mile of open routes 14 acres within ¼ mile of admin. routes	No routes in relict plant communities 369 acres within ¼ mile of open routes No relict plant communities within ¼ mile of admin. routes	No routes in relict plant communities 379 acres within ¼ mile of open routes No relict plant communities within ¼ mile of admin. routes
Riparian resources PFC = Proper Functioning Condition NFC = Non-functioning Condition FAR = Functioning at Risk ND = No data avialable		277.4 miles of riparian are within ¼ mile of routes • 127.7 PFC • 96.1 FAR or NFC • 53.6 ND	51.6 miles of riparian are within ¼ mile of open routes • 15.7 PFC • 14.7 FAR or NFC • 21.1 ND 36.6 miles of riparian are within ¼ mile of admin. routes • 13.5 PFC • 10.7 FAR or NFC • 12.5 ND	69.5 miles of riparian are within ¼ mile of open routes • 23.0 PFC • 20.7 FAR or NFC • 25.9 ND 7.9 miles of riparian are within ¼ mile of admin. routes • 2.0 PFC • 3.8 FAR or NFC • 2.1 ND	55.6 miles of riparian are within ¼ mile of open routes • 14.7 PFC • 17.0 FAR or NFC • 23.9 ND 1.0 mile of riparian are within ¼ mile of admin. routes • 1.0 ND	75.3 miles of riparian are within ¼ mile of open routes • 25.4 PFC • 24.2 FAR or NFC • 25.7 ND 3.1 miles of riparian are within ¼ mile of admin. routes • 0.5 PFC • 1.7 FAR or NFC • 1.0 ND
Wildlife	mule deer	1,459 miles of routes in habitat	555 miles of open routes and 162 miles of admin. routes in habitat	812 miles of open routes and 93 miles of admin. routes in habitat	513 miles of open routes and 19 miles of admin. routes in habitat	888 miles of open routes and 38 miles of admin. routes in habitat
	elk	144 miles of routes in habitat	57 miles of open routes and 4 miles of admin. routes in habitat	72 miles of open routes and 2 miles of admin. routes in habitat	40 miles of open routes and 0 miles of admin. routes in habitat	59 miles of open routes and 0 miles of admin. routes in habitat
	bighorn sheep	112 miles of routes in habitat	42 miles of open routes and 4 miles of admin. routes in habitat	58 miles of open routes and 7 miles of admin. routes in habitat	43 miles of open routes and 1 mile of admin. routes in habitat	62 miles of open routes and 2 miles of admin. routes in habitat
	black bear	110 miles of routes in habitat	49 miles of open routes and 6 miles of admin. routes in habitat	67 miles of open routes and 4 miles of admin. routes in habitat	32 miles of open routes and 0 miles of admin. routes in habitat	52 miles of open routes and 0 miles of admin. routes in habitat
	upland birds	159 miles of routes in habitat	72 miles of open routes and 8 miles of admin. routes in habitat	105 miles of open routes and 1 mile of admin. routes in habitat	73 miles of open routes and 0 miles of admin. routes in habitat	88 miles of open routes and 1 mile of admin. routes in habitat

BEST COPY AVAILABLE

287

Resource		Alternative A (no action)	Alternative B (preferred)	Alternative C	Alternative D	Alternative E
Special status animal species [1] nest sites include peregrine falcon and Mexican spotted owl [2] observations include bald eagle, southwestern willow flycatcher and state sensitive species		33 nest sites[1] within ¼ mile of routes 120 observations[2] within ¼ mile of routes	8 nest sites[1] within ¼ mile of open routes and 3 nest sites within ¼ mile of admin. routes 60 observations[2] within ¼ mile of open routes and 11 within ¼ mile of admin. routes	15 nest sites[1] within ¼ mile of open routes and 1 nest site within ¼ mile of admin. routes 73 observations[2] within ¼ mile of open routes and 11 within ¼ mile of admin. routes	11 nest sites[1] within ¼ mile of open routes and 0 nest sites within ¼ mile of admin. routes 66 observations[2] within ¼ mile of open routes and 4 within ¼ mile of admin. routes	15 nest sites[1] within ¼ mile of open routes and 0 nest sites within ¼ mile of admin. routes 82 observations[2] within ¼ mile of open routes and 4 within ¼ mile of admin. routes
Water quality		1,346 places where routes cross riparian areas (The large number of stream crossings in this alternative could be a function of inaccurate route data that has not been verified for Alternative A.)	50 places where open routes cross riparian areas	52 places where open routes cross riparian areas	41 places where open routes cross riparian areas	82 places where open routes cross riparian areas
Air quality		2,073 miles of dirt routes contributing to fugitive dust	724 miles of designated open dirt routes and 310 miles of administrative dirt routes contributing to fugitive dust	1,092 miles of designated open dirt routes and 179 miles of administrative dirt routes contributing to fugitive dust	666 miles of designated open dirt routes and 30 miles of administrative dirt routes contributing to fugitive dust	1,166 miles of designated open dirt routes and 82 miles of administrative dirt routes contributing to fugitive dust
Wild and Scenic Rivers (WSR)		no suitable WSR segments	10 miles of WSR within ¼ mile of designated open routes and 4.5 miles of WSR within ¼ mild of admin. routes	no suitable WSR segments	20.7 miles of WSR within ¼ mile of designated open routes and 1.4 miles of WSR within ¼ mild of admin. routes	23.4 miles of WSR within ¼ mile of designated open routes and 0 miles of WSR within ¼ mild of admin. routes
Route information (for comparison purposes)	administrative		310	179	30	82
	open		810	1,186	760	1,260
	total	2,167	1,120	1,365	790	1,342

ACC-15

COMMENT: Impacts of route closures on recreation activities and other uses such as fuelwood cutting, post cutting, and livestock grazing were not analyzed in the DEIS.

RESPONSE: The primary consideration in management of the Monument, as stated in the **Monument Management Direction** section in Chapter 2 of this Plan, is to protect the frontier character of the Monument and the Monument resources identified in the Proclamation. The rationale for selection of specific routes is discussed in the **Transportation and Access** section in Chapter 2 of this Plan. These factors include: protection of Monument resources, implementation of planning decisions, honoring valid existing rights, providing for the transportation needs of the surrounding communities, and deciding which routes go to specific destinations (overlooks, camping areas, etc.). These same considerations were included in creating the transportation networks for the various alternatives of the DEIS, and varied to provide an array of alternatives as required by NEPA regulations. The number of miles of routes open and closed is discussed in the Environmental Consequences section (Chapter 4) of the DEIS for many resources and uses, including recreation, outfitters and guides, livestock operations, and forestry product collection. These numbers illustrate the number of miles that would no longer be accessible and therefore may have some impact on these activities. A discussion of impacts to these activities from route closures and other decisions in this Plan is included in Chapter 3.

It is important to note that access for livestock permittees is provided for in the array of administrative routes in each of the alternatives and is discussed on page 2.81 and 2.82 in the DEIS and in the **Transportation and Access** section in Chapter 2 of this Plan. In addition, permittees are provided access for the proper management of livestock grazing operation on allotments. These stipulations are included in permits for each allotment and are evaluated as permits are renewed.

Forestry product collection is currently allowed in two designated areas in the Monument and is described in Chapter 2 in the **Forestry Products** section and on Map 2.2 of this Plan. Access to these areas is provided. Route closures in these areas would not substantially affect these activities.

ACC-16

COMMENT: By concentrating OHV use in a particular area, the BLM is also concentrating damage to the natural resources in that area.

RESPONSE: As stated in the **Transportation and Access** section in Chapter 2 of this Plan, OHV use would be limited to designated routes; no cross-country travel would be permitted. As a general approach, limiting OHV use to select regularly used routes minimizes the impacts to the region as a whole, and to identified sensitive resources in particular. Limiting OHV use to designated routes concentrates impacts on routes which have already been disturbed and which already have vehicular use. There is also an advantage in limiting OHV use on certain routes, in that it can be better managed and widespread impacts can be avoided.

ACC-17

COMMENT: Explain what is meant by no cross-country travel, and why proposals for cross-country vehicle use for certain areas and purposes will not be considered. Justification for prohibiting cross-country vehicle travel is not adequate. Adaptive management should be used for the management of OHVs as proposed for other activities.

RESPONSE: Impacts from OHV use are evident on the ground in many places within the Monument. (See the **Transportation and Access** section in Chapter 2 for a discussion of OHV and bicycle impacts.) In instances where the authorized officer determines that OHV impacts would occur in the future if not curbed, limitations or closures are allowed as provided in the 43 CFR 8340 Off-Road Vehicles regulations. Monitoring and adaptive management would be used to ensure that OHV use on designated routes continues to be compatible with resource protection objectives in the Approved Plan.

ACC-18

COMMENT: Various people requested administrative access on specific routes, while others suggested closing specific administrative routes or questioned why administrative routes were needed at all.

RESPONSE: Every individual request for keeping specific administrative routes open or closed was considered and evaluated on the basis of a variety of criteria. As stated in the **Administrative Routes and Authorized Users** section in Chapter 2 of this Plan, the BLM would be responsible for administrative routes which would be limited to authorized users. Administrative routes are existing routes that lead to developments where the BLM or some permitted user must have regular access for operation or maintenance. These authorized developments include such things as powerlines, cabins, weather stations, communication sites, spring developments, corrals, and water troughs. Access on these administrative routes would be strictly limited and would only be granted for legitimate and specific purposes. The BLM would work with authorized users to determine what administrative access is necessary to carry out the provisions of the authorized activity. Authorized users could include grazing permittees, researchers, state or Federal agency personnel, and others carrying out authorized activities under a permit or other authorization.

ACC-19

COMMENT: The DEIS stated that "The BLM, and Kane and Garfield Counties, would meet periodically to evaluate the routes designated as open for ATV use." Will there be provisions for public involvement when these discussions occur?

RESPONSE: Many public comments were received on the designation of ATV routes, including from Kane and Garfield Counties. After consideration of these comments, in addition to resource management and safety issues, the network of routes designated for ATV use shown on Map 2.1 was developed. Any proposed changes to the ATV routes in the future would provide for public comment and a plan amendment (except when done under an emergency closure), including input from the Counties, as provided for in the public participation provisions of 43 CFR 8340.

ACC-20

COMMENT: Clarify what is meant by "authorized users" as identified in the Management Common to All section of the DEIS. What kind of emergencies and what kind of uses would allow exceptions to zone and off-road vehicle restrictions?

RESPONSE: As discussed in the **Administrative Routes and Authorized Users** section in Chapter 2 of this Plan, administrative routes are existing routes which would be closed to the general public, but lead to developments where the BLM or some permitted user must have access for maintenance or operation. These authorized developments include such things as powerlines, cabins, weather stations, communication sites, spring developments, corrals, and water troughs. Access on these administrative routes would be strictly limited and would only be granted for legitimate and specific purposes. Authorized users could include grazing permittees, researchers, state or Federal agency personnel, and others carrying out authorized activities under a permit or other authorization. As stated in the **Administrative Routes and Authorized Users** section in Chapter 2 of this Plan, limited exceptions to the general management provisions could be granted to authorized users by the Monument Manager. These exceptions could allow off-highway vehicle use, aircraft landing, mechanized access on closed routes, or use of mechanized equipment in closed areas. Exceptions could be made in emergencies (such as search and rescue), or where clearly essential to serve Monument management purposes.

ACC-21

COMMENT: Clarify statement on page 2.15 of the DEIS concerning open and closed route designations: "...approach would be

BEST COPY AVAILABLE

790

consistent with that of the State of Utah, the U.S. Forest Service, and other land managers in the area."

RESPONSE: This statement in the DEIS was incorrect. The OHV designations described in the **Transportation and Access** section in Chapter 2 of this Plan are not necessarily the same as those utilized by other land managers in the area. The OHV designations described in this Plan are, however, consistent with standard BLM designations provided for in the 43 CFR 8340 Off-Road Vehicle regulations and the BLM Manual.

ACC-22

COMMENT: The DEIS alternatives do not adequately plan for current and future OHV recreation in the Monument, as required by law. The alternatives should go through a process to designate open, restricted, and closed areas for OHVs.

RESPONSE: As described in the **Transportation and Access** section in Chapter 2 of this Plan, OHV designations of "closed" or "limited to designated routes" would be made in this Plan. These designations are based on resource conflicts and patterns of use, among other issues, and are consistent with BLM-wide OHV designations as provided for in 43 CFR 8340 Off-Road Vehicle regulations and the BLM Manual. The BLM is not required to provide for all categories of designations.

ACC-23

COMMENT: What is the BLM's authority to close OHV trails and cross-country OHV travel without a specific project document?

RESPONSE: The BLM has the authority to make OHV designations in all planning processes. In the Monument, the designations selected are either "closed" or "limited to designated routes" as discussed in the **Transportation and Access** section in Chapter 2 of this Plan. These designations are consistent with standard BLM designations provided for in 43 CFR 8340 Off-Road Vehicle regulations and the BLM Manual. The environmental analysis associated with this Plan serves as the NEPA document for this decision.

ACC-24

COMMENT: How were open routes (public, administrative, ATV) decided?

RESPONSE: As stated in the **Transportation and Access** section in Chapter 2 of this Plan, the BLM was persuaded, as a result of widespread requests in the scoping process and further examination, that proper management of the Monument would be enhanced by making decisions on access and transportation routes in the Plan. The specific routes designated open (for both public and administrative use) in the DEIS alternatives were determined based on a variety of considerations. These include what is needed to protect Monument resources, implement planning decisions, honor valid existing rights, provide for the transportation needs of surrounding communities, and provide a reasonable range of transportation networks for NEPA analysis purposes. These issues, including public comment were considered in development of the Proposed Plan transportation system. The basic philosophy in determining which routes would be open in the Proposed Plan was to determine which routes access some destination (such as a scenic overlook or a popular camping site) and present no threat to Monument resources. These routes would be open to public use. Routes that were not considered desirable (for resource protection purposes) would not be kept open for public use. Additional routes would be designated open for administrative purposes. See the **Transportation and Access** section in Chapter 2 of this Plan and ACC-20 for a complete discussion on administrative routes and authorized users of these routes. A discussion of the designated routes for ATV use is provided in ACC-4.

ACC-25

COMMENT: Provisions for maintenance of state highways should be addressed, including sources for mineral materials and gravel. The Plan should also address road improvements needed for future increases in traffic.

RESPONSE: The BLM would continue to work with the Utah Department of Transportation concerning route maintenance for Highways 12 and 89 as discussed in the **Maintenance** section in Chapter 2 of this Plan. This would cover maintenance and safety work activities. If BLM approval is required for improvements to Highways 12 and 89 to handle future increases in traffic, those could occur following discussions between the BLM and the State justifying the need for such improvements. Any new ground disturbance would require site-specific environmental analysis.

As discussed in the **Energy and Mineral Activities** section in Chapter 2 of this Plan, the Monument is no longer subject to the issuance of new mineral material permits. However, existing material sites authorized by Title 23 rights-of-way would continue until lands are returned to BLM jurisdiction by the Federal Highway Administration.

ACC-26

COMMENT: How do routes and zones fit together? The zones need to provide for more improvements to routes.

RESPONSE: The management zones described in the **Zone Descriptions** section in Chapter 2 of this Plan help define permitted activities and any stipulations pertaining to them, as well as any excluded activities. Zones describe the character of visitor facilities, activities, etc., which are permitted within them. Zones do not dictate the class or maintenance level of routes located within them. A discussion of the maintenance level of routes can be found in the **Maintenance** section in Chapter 2 of this Plan.

ACC-27

COMMENT: Impacts from cross-country use and from route use should be analyzed separately.

RESPONSE: The BLM recognizes that vehicle use on routes and cross-country vehicle travel have different impacts on resources and uses. These transportation impacts were analyzed separately in the Environmental Consequences section (Chapter 4) of the DEIS. Chapter 3 of this Plan also includes a separate discussion of these issues and the impacts caused by each.

BIO-1

COMMENT: Explain the State of Utah's role in the management of fish and wildlife within the Monument, including reintroduction and introduction (native and non-native), and hunting and fishing regulations.

RESPONSE: The Proclamation establishing the Monument states: "Nothing in this Proclamation shall be deemed to diminish the responsibility and authority of the State of Utah for management of fish and wildlife, including regulation of hunting and fishing, on Federal lands within the Monument." As stated in the **Fish and Wildlife** section in Chapter 2 of this Plan, the BLM has the responsibility to manage the habitat that supports fish and wildlife species. The BLM's objective in managing habitat would be to work in conjunction with the Utah Division of Wildlife Resources (UDWR) in managing fish, wildlife, and other animals to achieve and maintain natural populations, population dynamics and population distributions in a way that protects and enhances Monument resources. To meet these objectives, the BLM would manage habitats for the recovery or re-establishment of native populations through collaborative planning with UDWR and others.

BIO-2

COMMENT: Various clarifications about invertebrates, birds, and sensitive fish species were requested. These included:

A. Is Appendix 15 a literature search, or is this a result of actual surveys, and why are there no mollusks listed?

B. Appendix 15 has the wrong genus and species names for Brewer's blackbird and for the mallard (pages A15.1 and A15.6). Brewer's blackbird should be *Euphagus cyanocephalus* instead of *Euphagus carolinus*. Mallard should be *Anas platyrhynchos* instead of *Anas platyrinos*.

C. There is one UDWR threatened raptor (ferruginous hawk) using the Monument that was not recognized in the DEIS.

D. Appendix 16 (page A16.4) erroneously lists the Colorado squawfish and the razorback sucker as being in the Monument.

RESPONSE:

A. The list of invertebrate species was derived by a literature search conducted by the Utah Natural Heritage Program. "Invertebrates of the Grand Staircase-Escalante National Monument: A Review," William R. Bosworth, III and George V. Oliver, Cooperative Agreement Number UT040-A8-0002, August 31, 1998.

A complete species list of invertebrates was not available at the time the DEIS was printed, therefore only a summary sheet was included. The invertebrate list compiled from the literature search is available on the Monument website or can be provided by request. No crustaceans have been reported in the literature for the Monument.

B. The scientific names used for Brewer's blackbird and for the mallard in the DEIS are in error and are corrected as written above in the Errata at the end of this document.

C. The ferruginous hawk is identified as a State and BLM sensitive species in Appendix 15 (page 15.5) and Appendix 16 (page A16.2) in the DEIS.

D. The Colorado squawfish and razorback sucker are not found within the Monument at the present time, but are found in the Lake Powell system, of which the Escalante River is a part.

BIO-3

COMMENT: Clarify the reseeding policy following fires.

RESPONSE: Reseeding after fires would be used in specific circumstances as described in the **Reseeding After Fires** section in Chapter 2 of this Plan. Native plants would be used as a priority in all except emergency situations, in instances where reseeding was determined necessary. All reseeding efforts must meet the overall objective for vegetation to be managed to achieve a natural range of native plant associations.

BIO-4

COMMENT: What are the different types of vegetation manipulation, and why does it appear that some alternatives allow more than others. Clarify your strategy for control of noxious weed species and the use of non-native plants. Impacts of vegetation restoration and the use of non-natives (seeding) need to be discussed.

RESPONSE: Some form of vegetation manipulation (chemical, biological, mechanical or management ignited fire) was allowed in the DEIS in all but two zones of two alternatives. Other zones restricted these activities to specific methods (e.g., biological) or for specific purposes (i.e., for protection of Monument resources). Determinations of which methods would be used in the different zones and alternatives was representative of the alternative and zone philosophies and provided a range of alternative management scenarios for impact analysis purposes. None of the alternatives discuss the amount of vegetation manipulation that would be allowed since site specific recommendations for vegetation restoration are not proposed. The **Vegetation** section in Chapter 2 of this Plan provides objectives for vegetation management within the Monument. Vegetation restoration methods are discussed under the **Vegetation Management** section in Chapter 2. These sections define the terms, provide examples of each method, and describe when methods are restricted to specific circumstances.

The Monument would have a noxious weed control program that is described in the **Noxious Weed Control** section in Chapter 2 of this Plan. Through cooperation with adjacent agencies and the Counties, the BLM is dedicated to control noxious weeds in and around the Monument.

Native plants would be used as a priority in all vegetation projects. This policy is described in the **Native vs. Non-native Plants** section in Chapter 2 of this Plan.

As stated in this Plan, vegetation restoration methods would only be used as a tool to meet the overall vegetation management objective - to achieve a natural range of native plant associations. It goes on to state that management activities would not be allowed to significantly shift the makeup of those associations, disrupt their normal population dynamics, or disrupt the normal progression of those associations. With this in mind, any vegetation restoration projects would be required to have beneficial effects to the vegetation associations. General discussions of vegetation management impacts (including the use of non-natives) are discussed in Chapter 3 of this Plan. More specific project level NEPA analysis would be completed prior to the use of vegetation restoration in the Monument.

BIO-5

COMMENT: Clarify the fuelwood cutting policy and locations.

RESPONSE: As stated in the **Forestry Products** section in Chapter 2 of this Plan, fuelwood cutting is currently allowed in two areas of the Monument (Rock Springs Bench and Buckskin Mountain). These areas are shown on Map 2.2. Other areas of the Monument may be considered for fuelwood cutting if determined necessary to achieve the overall vegetation management objective. Use of vehicles in association with fuelwood cutting areas would follow the same restrictions as other uses as described in Chapter 2 of this Plan.

BIO-6

COMMENT: Are there restrictions placed on activities to protect wildlife and plants?

RESPONSE: This Plan describes specific restrictions as they relate to certain activities. These can be found in the **Fish and Wildlife**, **Vegetation Management**, and **Special Status Animal and Plant Species** sections of Chapter 2. The **Zone Descriptions** section also provides information on restrictions on activities. Protection of wildlife and plants in the Monument is a primary concern in the management of the Monument. In general, if activities are determined to be harming wildlife or vegetation, restrictions would be imposed to minimize or eliminate these impacts. Standard protection zones exist for some listed animal species for protection from specific activities. These are discussed in the **Special Status Animal Species** section in Chapter 2 of this Plan.

BIO-7

COMMENT: What restrictions are proposed to protect unique sensitive resources such as relict plant communities?

RESPONSE: Unique and isolated vegetation communities such as relict plant areas and hanging gardens, as identified in the Proclamation, were a primary concern in development of this Plan. Specific restrictions for these areas are mentioned in the **Relict Plant Communities and Hanging Gardens** section in Chapter 2 of this Plan. These areas would be protected from any surface disturbing activity or any activity that may directly or indirectly impact the site. Non-surface disturbing research would be encouraged as it would increase our knowledge of these unique associations.

BIO-8

COMMENT: Is there more information regarding the protection and management of Federally listed endangered and threatened species, as well as sensitive species?

RESPONSE: Information on the management of listed and sensitive species is provided in the **Special Status Animal Species and Special Status Plant Species** sections in Chapter 2 of this Plan. This discussion includes information that is common to all species, as well as information that is specific to each. The BLM is dedicated to the recovery and conservation of all listed species as well as species that are considered sensitive by the State of Utah. Cooperating with State and other Federal agencies is an integral part of sensitive species protection.

BIO-9

COMMENT: Clarify the fire management policy. Why would fire suppression take place in Wilderness Study Areas (WSAs)?

RESPONSE: The objective of fire management in the Monument is to allow fire to play its natural role in the ecosystem. All fire activities would be coordinated with the Color Country Fire Management Area as described in the **Wildfire Management** section in Chapter 2 of this Plan. As outlined in the Color Country Fire Management Operating Plan, fire would be allowed to play its natural role in the ecosystem in most areas of the Monument. Areas with facilities, private property, or areas where public safety is a concern may have fire suppression activities. Other areas for fire suppression activities may be identified for the protection of wood structures in historic or archaeologic sites. Changes in the current fire management zone prescriptions may be modified through the fire planning process. Heavy equipment use is only allowed through authorization of the Monument Manager. Fire would be allowed to play its natural role in WSAs, except where noted in the Color Country Plan for the protection of private property or other features. A fire resource advisor familiar with WSA issues would be consulted on all fires within the Monument that involve WSAs.

BIO-10

COMMENT: The Plan should provide more specific information on fish in order to assess the effects of proposed actions. The BLM should also coordinate with adjacent land management agencies where pertinent to fisheries management. The BLM should correct inaccuracies, such as identifying the presence of Bonneville cutthroat trout in the West Fork of Boulder Creek.

RESPONSE: While the DEIS does not specifically address fish management, it does address the habitat components (i.e., water quality and riparian areas) that affect fish. Proposed decisions in the DEIS and Proposed Plan (e.g., water quality, riparian, limiting surface disturbing activities, and Wild and Scenic River determinations) provide protection for fish and fisheries habitat. The BLM will continue to coordinate with the UDWR, the U. S. Forest Service, and Glen Canyon National Recreation Area where common management of river systems and associated wildlife, including fish, occur. Corrections to inaccuracies, such as the inaccurate reference to Bonneville cutthroat trout (should be Colorado cutthroat trout) found in the DEIS, are identified in the Errata at the end of this document.

BIO-11

COMMENT: The DEIS does not address aquatic communities in the Monument.

RESPONSE: The BLM recognizes the importance of aquatic resources in the Monument. Riparian and wetland systems provide habitat for plants and animals, especially in areas such as the Monument where water is a limited resource. These systems are also some of the most easily affected resources in arid ecosystems due to competing recreation, livestock and wildlife use and dependence on water. Protection of these areas is discussed in the **Riparian** section in Chapter 2 and is further discussed in the **Strategy for Assuring Water Availability** section in Chapter 2 of this Plan. Water quality monitoring, which is also described in the **Water** section in Chapter 2 of this Plan, is an ongoing program which would eventually include monitoring of aquatic invertebrates and key indicators of water quality such as algal communities. These issues would also be vital in the study of hanging gardens. At the time of plan preparation, the only UDWR management plan for aquatic communities in the Monument was in the Aquatic Management Plan Escalante River Drainage Hydrologic Unit. This Plan discusses fish, amphibians, and reptiles. As stated in the **Fish and Wildlife** section in Chapter 2 of this Plan, the BLM would work closely with the UDWR in the management of wildlife species in the Monument. Protection of aquatic resources in the Monument, and the maintenance of healthy aquatic systems, are a priority in management of this area.

BIO-12

COMMENT: Clarify the use of Proper Functioning Condition assessment for riparian areas in the Monument.

RESPONSE: Proper Functioning Condition (PFC) assessment protocols were developed to provide standardized assessment of riparian areas on public lands. The BLM uses this process to evaluate three component of a riparian-wetland area: (1) vegetation, (2) landform/soils, and (3) hydrology. Although the standard protocols do not include evaluation of special status species habitat or ecological processes, these would be evaluated in all future riparian assessments. This is because the recently adopted Utah Standards and Guidelines for Healthy Rangelands require evaluation of special status species habitat and ecological processes during assessments. Since the current PFC inventory was completed prior to implementation of the new Utah Standards and Guidelines for Healthy Rangelands, these issues were not considered during evaluation. All segments of riparian habitat previously inventoried are scheduled to be reassessed as part of the allotment assessments. Furthermore, riparian areas that have not been evaluated are scheduled for assessments within the next three years. Proposed actions in this Plan would contribute to an upward or static, rather than a downward trend in PFC class as outlined in the Utah Standards and Guidelines for Healthy Rangelands. This is true for all of the alternatives in the DEIS as well as this Proposed Plan.

BIO-13

COMMENT: There are no benefits listed in the DEIS from water developments constructed for wildlife.

RESPONSE: Impacts of water developments were discussed throughout the Environmental Consequences section (Chapter 4) of the DEIS. Although not specifically discussed, there are potential benefits derived from livestock water developments if they are constructed in such a way as to provide accessible water to wildlife. If the water is not accessible to wildlife or transported by pipeline where wildlife use the water, then water developments could be a detriment. Specific impacts to wildlife would be assessed through project-level environmental analysis as specific projects are proposed.

BIO-14

COMMENT: Clarify the Monument's role in providing landscape connectivity for wildlife. How will the Monument work with adjacent agencies on landscape connectivity issues?

RESPONSE: The zones in this Proposed Plan provide for linkages between adjacent agency lands by protecting large undisturbed or primitive areas. These areas include riparian, as well as upland habitat for wildlife species. Interagency coordination and cooperation are integral to management of biological resources in the Monument. Many programs described in this document include interagency coordination in their discussions. Examples from the following sections in Chapter 2 of this Plan include: **Fish and Wildlife, Noxious Weed Control, Wildfire Management, and Special Status Plant Species** and **Special Status Animal Species.** In addition to these discussions, there is an effort to coordinate research activities with adjacent agencies, as described in the **Science and Research** section in Chapter 2 of this Plant. All of these activities demonstrate the BLM's commitment to interagency coordination and landscape resource management.

BIO-15

COMMENT: How will the Executive Order for Invasive Species be incorporated in this Plan?

RESPONSE: On February 3, 1999 the President issued Executive Order 11312 regarding invasive species management on Federal lands. Invasive species management issues in the **Noxious Weed Control** and **Native Vs. Non-native Plants** sections in Chapter 2 of this Plan incorporate provisions from this Executive Order and describe how the Monument would prevent the introduction of invasive species and would work to remove invasive species that are currently present.

BEST COPY AVAILABLE

296

BIG-16

COMMENT: Impacts on wildlife were not analyzed in relation to routes.

RESPONSE: General analysis of wildlife impacts from route closures was provided in Chapter 4 of the DEIS. In response to comments, additional information has been analyzed and provided in the impact analysis in Chapter 3 of this Plan. Additionally, information regarding wildlife and the different route networks for the DEIS alternatives has been completed and is provided in ACC-14.

GEN-1

COMMENT: Explain the animal damage control policy and how these activities will be dealt with in the future. Comments on animal damage control ranged from "don't allow any animal damage control including mountain lions and bears," to "predator control is an important part of proper livestock management," and "predator control should be used only for human safety."

RESPONSE: As stated in the **Wildlife Services** section in Chapter 2 of this Plan, Wildlife Services (formerly Animal Damage Control) activities within the Monument would be limited to the taking of individual coyotes within the immediate vicinity after verified livestock kills, where reasonable livestock management measures to prevent predation had been taken and had failed.

Reasonable livestock management measures could include experimental, preventive measures to manage livestock for less predation. No traps, poisons, snares, or M44s would be allowed in the Monument due to safety concerns and potential conflicts with Monument resources. Pursuant to the Proclamation, bear and mountain lion populations are managed under State regulations for wildlife through the UDWR. This includes regulations for hunting and regulations covering depredating bears and mountain lions.

GEN-2

COMMENT: Filming restrictions in the DEIS are not clear in regards to who they apply to and what constitutes commercial and minimum impact filming.

RESPONSE: Commercial filming activities that require a permit (and payment of fees) include:

- commercial moving photography - motion pictures, television, car and other product commercials, documentaries, etc. (From 8/10/94 letter signed by the Acting BLM Director, and IM UT 96-15 dated 12/14/95).

- commercial still photography - advertisements, brochures, calendars, postcards, books, photographing public land users to sell pictures to those same users, photography featuring a commercial product for sale using Monument lands as a background (such as fashion shoots or magazine advertisements), or any activity whereby the photographer is under contract to sell his/her photos (From 8/10/94 letter signed by the Acting BLM Director, and IM UT 96-15 dated 12/14/95).

All commercial filming activities permitted in the Monument must be "minimum impact." Minimum impact filming has a specific definition in regards to activities and impacts to resources as described in the **Commercial Filming** section in Chapter 2 of this Plan. Instruction Memorandum No. 94-59 (11/12/93) and 43 CFR 2929.2-2 provide the basis for determining minimum impact permits.

Many photographers (both professional and amateur) are allowed to take still photographs without a permit or the payment of any fees. Visitors using cameras and/or recording devices for their own personal use are also not required to obtain a permit. All filming activities would have to comply with zone prescriptions.

GEN-3

COMMENT: Protecting wilderness character is the original intent of the designation of the Monument.

RESPONSE: The Presidential Proclamation establishing Grand Staircase-Escalante National Monument (GSENM) states "The

Grand Staircase-Escalante National Monument's vast and austere landscape embraces a spectacular array of scientific and historic resources" and specifically notes that the Monument was "set apart and reserved" for the "purpose of protecting the objects identified." The Proclamation also states that the remote and undeveloped character of the Monument is responsible for the continued existence and quality of most of the scientific and historic resources described. The BLM recognizes that safeguarding the remote and undeveloped character of the Monument is essential to the purposes for which the Monument was created and this is recognized in the DEIS and this Proposed Plan. However, recommendations for Wilderness designation or the addition of new Wilderness Study Areas is beyond the scope of this Plan as discussed in **The 1999 Utah Wilderness Inventory and Section 202 Planning Process** section in Chapter 2 of this Plan.

GEN-4

COMMENT: There is an egregious error in math on page S.27 under Alternative C in the DEIS.

RESPONSE: This error has been corrected and is shown in the Errata at the end of this document.

GEN-5

COMMENT: How are overflights, aircraft landing, and natural quiet addressed?

RESPONSE: The DEIS contained a section on aircraft operations at page 2.75. This Proposed Plan contains a more detailed discussion of aircraft operations, aircraft landing, and noise baseline studies in the **Aircraft Operations** section in Chapter 2.

GEN-6

COMMENT: Valid Existing Rights (VERs) should have been considered as a significant decision in the DEIS.

RESPONSE: The Presidential Proclamation which established the Monument states "The establishment of this monument is subject to valid existing rights." The DEIS and this Proposed Plan therefore do not make specific decisions concerning VERs which may be asserted in the future under various existing authorities. Instead, the BLM would periodically verify the status of VERs and when an action is proposed pursuant to any of them, the BLM would analyze the actions potential impacts in order to provide a basis for decision making as discussed in the **Valid Existing Rights and Other Existing Authorizations** section in Chapter 2. For this reason, VER management was not listed as a significant decision in Chapter 1 in the DEIS.

GEN-7

COMMENT: Some people commented that the Plan should address new coal and mineral leasing, while others commented that new leasing should not be allowed and that existing leases should be purchased. How are VERs addressed in the Plan? Why were no additional restrictions placed upon them? How will potential conflicts between Plan objectives and VERs be handled? How will access for VERs be provided?

RESPONSE: No new coal or other mineral leasing will occur within the Monument because the Proclamation withdraws the Monument from the location of new mining claims and new mineral leasing. The Proclamation also states that "The establishment of this monument is subject to valid existing rights." VERs are discussed in detail in the **Valid Existing Rights and Other Existing Authorizations** section in Chapter 2 of this Plan. This section covers the treatment of proposed activities that may conflict with Monument resources. This section also includes a discussion of Standard Lease Terms and mentions that they can be modified by special or supplemental stipulations and that conditions of approval can be developed on site specific applications to meet other resource concerns. The BLM would consider the use of special stipulations or other permit conditions on a case-by-case basis to protect Monument resources. In addition, the purchase, where authorized, or exchange of existing mineral interests to protect Monument resources may be considered by the BLM on a case-by-case basis. To the extent that holders of VERs are entitled to reasonable access, the BLM would work with the holder of the VER to provide access consistent with the Proclamation and to assure that VERs are not impaired.

GEN-8

COMMENT: Explain why there is no full field development. Why are coalbed methane resources not covered?

RESPONSE: Full field mineral development of new and existing Federal mineral leases was not analyzed as a separate alternative in the DEIS for several reasons:

- The Monument proclamation closed the Monument to Federal mineral leasing or other disposition of Federal minerals.
- From a mineral resource perspective, the probability of successful developement from exploration to full field development of mineral resources is low. Recent exploratory oil and gas wells in and around the Monument have not disclosed the existence of commercially recoverable quantities of oil and gas. As to coal, although the resources exists on leases within the Monument and development is legally permissible, the economics of producing and transporting coal to distant markets without established infrastructure makes future developement speculative. This conclusion is supported by recent analysis of existing coal leases. As to coalbed methane, because new mineral leasing is not allowed within the Monument which would provide existing coalbed methane leases the opportunity to expand and consolidate holdings, it is not clear that current coalbed methane leases can be commercially developed. Further, it is not clear that there have been confirmed commercially recoverable amounts of coalbed methane within the Monument, and until that occurs development would be speculative.
- Insufficient information is currently available to analyze the likely impacts of full field development.
- Direct, indirect, and cumulative analysis would be required and would occur at the time that any mineral development is specifically proposed.

This staged approach to NEPA compliance has been upheld by the 10th Circuit in Park County Resource Council v. USDA 817 F2d 609 (10th Cir 1987). Such an approach does not constitute "piecemealing" of a larger project. This Plan is independent of, and does not pre-determine, the result of any future application for permit to drill (APD) or development proposal. NEPA compliance would be conducted at such time that any future proposal is made; adequate information would then exist to identify precisely the proposed activities and to analyze the proposal and its impacts. The Interior Board of Land Appeals has upheld approval of an APD for an exploratory well without analysis of full field developement (see Utah Chapter of Sierra Club, 120 IBLA 229).

GEN-9

COMMENT: Explain how local interests are incorporated into the Plan.

RESPONSE: The DEIS contains a section on Communities in Chapter 2 (page 2.76). That section states that the BLM has a strong commitment to work with communities in managing the Monument, as already demonstrated in ongoing efforts to consult with communities on planning and provide communities with financial assistance on planning issues associated with the Monument. It goes on to state that the BLM will work with communities and utility companies on infrastructure needs, and commits the BLM to participation in community organizations and regional coordination groups. Major visitor facilities would be located in the communities to facilitate community involvement in visitor services. Further, local elected officials from each county would be represented on the GSENM Advisory Committee. Specific direction for activities such as fuelwood cutting and collections, and cooperation with communities are addressed in Chapter 2 of this Plan.

GEN-10

COMMENT: Animal and Plant Health Inspection Service (APHIS) was not consulted in the EIS process.

RESPONSE: Under a National Memorandum of Understanding (MOU) between Wildlife Services and the BLM, the BLM is committed to working with "APHIS-Animal Damage Control to identify areas on BLM lands where mitigation or restrictions may be needed to comply with BLM's Resource and Management Framework Plans." The BLM considers the Monument a place where restrictions are appropriate, and they are reflected in this Plan. The BLM will continue to discuss appropriate animal damage control activities with Wildlife Services in the annual review of wildlife damage management plans to ensure that they are consistent with this Plan. Under the MOU, the BLM is not required to consult with APHIS on the development of specific proposals for the DEIS.

GEN-11

COMMENT: Explain Class I airshed designations. It was suggested that the Monument pursue Class I designation and that impacts on air quality from the alternatives were not considered and models/formulas were not used to assess air quality impacts. Others suggested the Class II designation should be maintained.

RESPONSE: The Clean Air Act of 1977 established three air quality classes for Prevention of Significant Deterioration. The Act established all National Parks of a particular size (5,000 acres or more) as mandatory Class I areas; all five National Parks in Utah are Class I areas. As stated on page 3.14 of the DEIS, the entire Monument is classified as a Class II area. To change an area from one classification to another, the Utah Air Quality Board submits a recommendation to the Governor. This process is the responsibility of the State.

After reviewing comments on air quality, including suggestions that the Monument pursue Class I status, and after considering potential benefits to resources, the BLM has decided not to pursue Class I designation for the Monument. Class II status is sufficient to protect air quality within the Monument since this Plan does not propose any actions that are expected to affect air quality standards. The presence of Class I areas surrounding the Monument affords additional protection. As stated in the **Air Quality** section in Chapter 2 of this Plan, all actions and authorizations would be designed or stipulated so as to protect air quality within the Monument and the Class I areas surrounding the Monument.

A discussion of impacts on air quality is included in Chapter 4 of the DEIS and in Chapter 3 of this Plan. Specific formulas and models were not used for this analysis because the BLM is not proposing any actions that would significantly affect air quality (only temporary localized increase in fugitive dust from construction and vehicle use). In addition, sufficient vehicle use data are not available to estimate levels of such temporary increases. While ongoing monitoring of air quality is not occurring, the State of Utah categorizes the Monument as an attainment area and estimates air quality pollution to be low.

GEN-12

COMMENT: The Monument should be designated Visual Resource Management (VRM) Class I, especially Wilderness Study Areas. The VRM Class IV should not be a designation in the Monument.

RESPONSE: The VRM classes are discussed in Chapter 2 of both the DEIS and this Plan. As discussed, VRM classes in the DEIS were based on an inventory updated after designation of the Monument. Based on public comment, including the suggestions above, and re-evaluation of visual resource management objectives, the VRM Class IV areas (where major modification of the existing character of the landscape are allowed) have been integrated into surrounding classes for this Plan. Should portions of the Monument be designated Wilderness or added to the Wild and Scenic River system, the VRM Classes for these lands would be changed to VRM Class I.

GEN-13

COMMENT: Explain the composition and role of the advisory committee. Will there be more than one group?

RESPONSE: The **GSENM Advisory Committee** is discussed in Chapter 2 of this

Plan. One advisory committee is proposed and would be charted under the Federal Advisory Committee Act (FACA). This committee would advise on science related matters and on progress in meeting management plan objectives in the Monument. The make-up of the committee is also discussed in the **GSENM Advisory Committee** section in Chapter 2 of this Plan.

GEN-14

COMMENT: There is no table showing how the DEIS complies with Federal regulations and executive orders. Executive Order 11988 is not mentioned in the DEIS.

RESPONSE: Chapter 1 of both the DEIS and this Plan discusses the major laws, regulations, and criteria with which this Plan must comply. A table of Federal regulations and executive orders, along with how the various alternatives comply with each, was not included in the DEIS because all alternatives must comply with applicable laws, regulations, and executive orders. To list each one individually would unnecessarily enlarge the document.

Page 4.53 of the DEIS stated that "there are no floodplains associated with large rivers in the Monument." However, after consulting the Federal Emergency Management Agency maps which show the location of special flood hazard areas (floodplains), it was determined that there are a number of floodplains within the Monument. Therefore, a policy on floodplains is included in the **Facilities** section in Chapter 2 and in the **Issues Considered but not Analyzed in Detail** section in Chapter 3 of this Plan. In accordance with Executive Order 11988 (Floodplain Management), these sections state that no projects or activities that would result in permanent fills or diversions in, or placement of permanent facilities on special flood hazard areas, would be proposed within the Monument.

GEN-15

COMMENT: How does the Proposed Plan address cultural and historic resources? More emphasis should be placed on cultural and historic resources.

RESPONSE: The BLM recognizes the importance of cultural and historic resources to the cultural heritage of the local communities and Native American Indian communities. The objectives set out in the **History** and **Archaeology** sections in Chapter 2 of this Plan are established to support the preservation, study, and appreciation of the cultural and historic resources and the cultural heritage of the peoples of the region. The BLM is committed to the continuing consultation with Native American Indian communities and to continuing and building on the collaborative history programs already initiated in the local communities. For example, the BLM is involved in an ongoing Oral History Program in cooperation with local communities. The Oral History Program focuses on the collection of histories from local residents and others knowledgeable about the region in order to increase understandings of the interactions between people and the environment of the Monument.

GEN-16

COMMENT: Clarify "multiple use" as it relates to the Monument. Multiple use should be emphasized.

RESPONSE: The term "multiple use" is defined in Section 103 (c) of FLPMA. FLPMA defines multiple use as the "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic output or the greatest unit output." A discussion of multiple use was included in the DEIS on page 1.1 and is included in Chapter 1 of this Plan. The Proclamation that established the Monument governs how the provisions of FLPMA (including multiple use) will be applied within the Monument, since the Proclamation withdraws some uses (e.g., mineral entry) and states that some uses will continue to be managed under existing laws (e.g., grazing). The Proclamation also dictates that the BLM protect the spectacular array of scientific, historical, biological, geological, paleontological, and archeological objects for which the Monument was created. The multiple uses that occur on the Monument must meet this requirement.

GEN-17

COMMENT: A word is missing on page A6.1 in the Areas of Critical Environmental Concern discussion.

RESPONSE: The missing words are "these resources." This correction is noted in the Errata at the end of this document.

GEN-18

COMMENT: There is a factual error in the DEIS (page 3.56 within the section heading of Oil and Gas) regarding testing of the Conoco, Inc. Reese Canyon State 32 well.

RESPONSE: This error has been corrected and is shown in the Errata at the end of this document.

GEN-19

COMMENT: Will there be Research Natural Areas designated in the Monument?

RESPONSE: One Research Natural Area existed prior to Monument designation. This is the No Mans Mesa Research Natural Area, designated in 1986. The DEIS recommended that this designation continue. Designation of additional Research Natural Areas is not being recommended in this Plan. The focus of the entire Monument is on the protection of the resources identified in the Proclamation and on the appropriate study of these resources. Therefore, the use of Research Natural Areas as a management tool for further areas is not considered necessary.

GEN-20

COMMENT: How were unavoidable adverse impacts addressed?

RESPONSE: While there is not a specific section titled "Unavoidable Adverse Impacts" in the DEIS, these impacts are included throughout Chapter 4 in the impacts discussion. All adverse impacts discussed, particularly those remaining after application of mitigation measures, constitute unavoidable adverse impacts. The alternatives analyzed in the DEIS and this Plan/Final Environmental Impact Statement (FEIS) represent the range of mitigation measures to lessen adverse impacts.

GEN-21

COMMENT: Mitigation measures that are proposed in several places in the DEIS should be better defined.

RESPONSE: The prescriptions and zone features of the alternatives in the DEIS are in themselves alternative mitigation measures to protect Monument resources. These measures were discussed throughout Chapter 4 of the DEIS as eliminating or lessening impacts to resources. The mitigation features of this Plan are also specifically discussed throughout Chapter 3. Additional mitigating measures mentioned in both the DEIS and this Plan/FEIS documents would be developed in subsequent project level NEPA analysis.

Monitoring of all mitigation strategies is integral to the protection of Monument resources. Information gained from this monitoring would be part of the adaptive management framework discussed in Appendix 3 of this Plan.

GEN-22

COMMENT: How will the BLM handle oil and gas exploration and drilling? Why are impacts from these activities not analyzed for cumulative effects or direct and indirect effects?

RESPONSE: A general discussion of impacts from current operations was included in the Cumulative Impacts section of the DEIS, page 4.49. This Plan also includes a general discussion of these activities in the **Cumulative Impacts** section in Chapter 3. Direct, indirect, and cumulative impacts from future oil and gas development are not analyzed in detail in this Plan because the BLM does not view such development as reasonably foreseeable. Although not legally precluded, assuming the lessees have valid existing rights, future oil and gas development appears speculative. A number of oil and gas exploratory wells have been drilled in and around the Monument without the discovery of commercially recoverable amounts of oil and gas. If commercially recoverable amounts of oil and gas are discovered, the impacts would be analyzed in future NEPA documents.

GEN-23

COMMENT: The Proposed Plan should include an analysis to address the cost of implementation of each of the alternatives.

RESPONSE. When this Proposed Plan and the alternatives in the DEIS were developed, the BLM considered what would be reasonable to expect in terms of future budgets for enforcement, mitigation, and other implementation measures. While one aspect of implementation may be more costly in a certain alternative, there are generally other aspects that may be less costly. For example, enforcement measures may be more costly in one alternative where more restrictions are used, while provision of visitor amenities might be less costly. Overall, the alternatives were designed to be realistic in terms of budget needs.

A detailed analysis of the cost of each alternative is unnecessary because the consideration of lowest cost is not a factor in selecting a proposed plan. The least expensive alternative would not always best meet the requirements of the Proclamation, FLPMA, and other laws, so budget costs were not considered necessary to the planning process.

GEN-24

COMMENT: Explain the "adaptive management" process. How will monitoring be incorporated into management?

RESPONSE: The BLM realizes the importance of developing monitoring and adaptive management measures for protection of Monument resources. These programs would ensure that the most current scientific understanding is applied to the protection and management of Monument resources. The **Implementation and Adaptive Management Framework** in Appendix 3 of this Plan describes the process of how objectives would be established, monitored, and evaluated to ensure protection of resources based on new data and information. The GSENM Advisory Committee would be an integral part of the adaptive management process. In Chapter 2 of this Plan, the **GSENM Advisory Committee** section discusses their role in advising Monument management on science related matters and efforts to meet plan objectives.

GEN-25

COMMENT: Explain how the Plan affects/addresses private property within the Monument boundary.

RESPONSE: This Plan applies only to public land within the boundaries of the Monument; it does not apply to private lands. However, as stated in the **Other Existing Rights or Interests** section in Chapter 2 of this Plan, the presence of private lands within the Monument has implications for public land because landowners are entitled to reasonable access to their land. Such access is subject to the rules and regulations governing the administration of public land. The BLM has discretion to evaluate and consider such things as proposed construction methods and location, reasonable alternatives, and reasonable terms and conditions as are necessary to protect the public interest and Monument resources.

GEN-26

COMMENT: Clarify the Areas of Critical Environmental Concern (ACEC) process. If ACECs are not designated, how will areas nominated for ACECs be protected? Why was the Scenic Route nomination not included in the list of nominations in Appendix 6, page A6.2? Why weren't the Outstanding Natural Areas (ONA), Research Natural Areas (RNA), and Wolverine Petrified Forest Area (WPFA) included in the ACEC nominations?

RESPONSE: Areas of Critical Environmental Concern are areas within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. The identification of a potential ACECs shall not, of itself, change or prevent change of the management or use of public lands (43 CFR 1601.0-5 and the FLPMA).

The ACEC process is described in Chapter 2, page 2.75, and in Appendix 6 in the DEIS, as well as in the **Areas of Critical Environmental Concern** section in Chapter 2 and Appendix 10 of this Plan. ACEC nominations were considered by an evaluation team to determine if they met the relevance and importance criteria described in 43 CFR 1610.7.2. After careful evaluation, it was determined that the resources identified in the nominations would be adequately protected by the management prescriptions proposed in the alternatives. Therefore, it was determined that no ACECs would be proposed through this planning process.

An ACEC designation does not in itself provide protection. The protection comes from management prescriptions that the BLM proposes through the planning process. Those protective prescriptions can be made without an ACEC designation. Examples of proposed management prescriptions that protect the resources that the Monument was set aside to preserve include: closing the Monument to cross-country vehicle use, limiting or not allowing the placement of minor facilities (such as pullouts, parking areas, signs, etc.), limiting group size, and limiting or not allowing rights-of-ways. A complete discussion can be found in Chapter 2 of this Plan. The proposed management prescriptions are similar to those "special management prescriptions" that could be proposed for an ACEC, and they are the prescriptions the BLM considers necessary to protect resources within the Monument.

Although mistakenly not included on the list of nominations on page A6.2 of the DEIS, the Scenic Routes ACEC nomination is shown in Table A6.1 on the next page. This nomination was evaluated for relevance and importance, along with the other nominations. It was determined that the management prescriptions provided for the zones adequately protect the scenic corridors and that an ACEC designation was not warranted.

As stated on page 2.83 in the DEIS, "All existing special designations (ONAs, RNA, WPFA) are consistent with the Proclamation and the objectives of the alternatives of the Plan. Thus, these designation would be continued in all alternatives." These special designations are discussed in Appendix 18 in the DEIS, and ACEC status is not necessary to provide further protection.

GEN-27

COMMENT: The cumulative impacts are not quantifiably distinguished between the alternatives.

RESPONSE: The Cumulative Impacts section (Chapter 4) in the DEIS discusses the cumulative impacts of the five alternatives. Although Alternatives B, C, D and E are not discussed separately, impacts that are different between the alternatives are discussed qualitatively in the narrative. This Cumulative Impacts section is organized in the same manner as the rest of Chapter 4, in order to facilitate comparison with the other impact discussions. Quantitative analysis for cumulative impacts was not always possible due to the absence of quantitative data upon which to base the analysis. The level of detail included in this section is comparable to that included in the rest of Chapter 4 and to the specificity of the decisions being proposed. The **Cumulative Impacts** section of this Proposed Plan includes a discussion of cumulative impacts of the proposed decisions which is quantified when possible.

GEN-28

COMMENT: In the analysis there are a number of surface disturbing activities such as grazing, resource exploration and extraction, vegetation manipulation, research and illegal use of ATVs that were not included in the assumptions for acres of disturbance. Why?

RESPONSE: Grazing, resource exploration and extraction, vegetation manipulation, and surface disturbing research were not included in the acres of disturbance estimates because there are no specific proposals for these activities in the DEIS. These topics are discussed in the Management Common to All Alternatives section of the DEIS since management does not vary by alternative. Since a more detailed discussion of circumstances where vegetation restoration would be used is provided in this Plan, estimates for acres of disturbance from vegetation restoration have been included for analysis purposes in Chapter 3. These estimates would have been roughly the same across the alternatives in the DEIS since management ignited fires would be the predominate tool used and this tool was allowed in all alternatives.

Illegal use of ATVs has the same impacts as allowing cross-country travel. It is assumed that illegal ATV use levels would not differ significantly by alternative, so speculating would not assist with comparisons among alternatives.

GEN-29

COMMENT: The Summary of Environmental Consequences Table (pages S.24 and 4.70) is incorrect when it says "animal damage control activities would directly and indirectly impact visitor experiences in Alternative D."

RESPONSE: The tables are incorrect and have been changed to "visitor experience would not be impacted by animal damage control activities, because these activities would not be allowed." The text in Chapter 4, page 4.40, is correct. Corrections have been made on the Errata at the end of this document.

GEN-30

COMMENT: The DEIS did not seem to address mitigation or limits on surface-disturbing research. Will surface disturbing research be allowed, and if so under what conditions? What is the definition of "high-scientific value?" What will the permit policy be for surface-disturbing or non-surface disturbing research?

RESPONSE: The section in Chapter 2 on **Management of Science and Research Activities** discusses the management of research activities in the Monument. All science and educational related activities would require special-use permits, and in general, researchers would need to comply with the zone prescriptions (group size, mechanized vs. non-mechanized, etc.). The BLM would consider exceptions to the zone prescriptions during the special-use permitting process for extremely high-value research opportunities, where opportunities are not available elsewhere or where research projects focus on protecting resources at risk.

Because future science activities cannot be envisioned now, surface-disturbing research projects would be considered on a case-by-case basis by the BLM during the permitting process. This would be done in consultation with the GSENM Advisory Committee, which includes eight members from the scientific community. The research value of the project and its mitigation potential would be weighed against the project's impact(s) to other Monument resources. Surface-disturbing research activities would be addressed and mitigated where necessary in the special-use permit. Some projects, due to their scope and location, may require NEPA analysis.

Projects with high-scientific value are those which have the potential to significantly enhance the knowledge base and protection of Monument resources. In general, these are projects that can help evaluate/stabilize certain resources at risk (e.g., threatened and endangered species, riparian zones, geologic hazards). Projects with high scientific value also refers to those research projects that are unique to the Monument and could not be done elsewhere.

Some people commented that surface-disturbing research for paleontological or archaeological studies would destroy Monument resources in violation of the Antiquities Act. Artifacts found during such studies would be collected to standards established by the GSENM Advisory Committee, and the artifacts would be properly curated.

GEN-31

COMMENT: Explain how the science program would protect Monument resources. How can science occur without affecting Monument resources?

RESPONSE: The Monument provides an unparalleled opportunity for the study of large-scale scientific and historic resources. In addition to the study of specific scientific resources, this setting allows study of such important issues as: understanding ecological change over time; increasing our understanding of the interactions between humans and their environment; improving land management practices; and achieving a properly functioning, healthy, and biologically diverse landscape. Science would be supported and encouraged, but intrusive or destructive investigations would be carefully reviewed to avoid conflicts with the BLM's responsibility to protect and preserve scientific and historic Monument resources.

Science can aid the BLM in protecting Monument resources. By conducting research in the Monument, the best possible information would be made available to be used to protect resources. For example, conducting baseline inventories for hanging gardens, sensitive areas and areas that may be potentially affected from proposed activities can be identified. This would allow for appropriate measures for the protection of these resources. All science activities and programs would have measurable objectives and would be evaluated as described in the **Implementation and Adaptive Management Framework** Appendix of this Plan. Chapter 2 of this document also discusses the idea of leaving some resources in place for their protection and possible future study. Although science is an integral part of the Monument, protection of Monument resources is the primary concern in the management of the Monument.

GEN-32

COMMENT: How were the assumptions for disturbance generated and why did Alternative D project more disturbance than other alternatives?

RESPONSE: Each alternative presented in Chapter 2 of the DEIS includes a discussion of the guiding philosophy for that alternative. The assumptions on surface disturbance were based on these philosophies and any reasonable foreseeable actions stemming from them. Alternative D has a philosophy that discouraged intensive use in the interior of the Monument, although self-directed experiences (primitive camping experiences) would be encouraged. As a result, it was reasonably foreseeable that more primitive camping areas would be designated in that alternative for resource protection purposes. For example, if dispersed camping were creating widespread disturbance in a sensitive area, specific areas could be designated and the rest of the area closed to camping. While this may create some surface disturbance at the designated site, more widespread disturbance would be avoided.

The estimated acres of disturbance for the primitive camping areas is based on the average size of disturbance of existing primitive camping areas in the Monument. These primitive camping areas (as they were referred to in the DEIS) are more than single sites, but are "areas" where several primitive sites could be located. The assumptions for disturbance for this Plan are included at the beginning of Chapter 3.

GEN-33

COMMENT: The DEIS and Proposed Plan should include the cumulative effects of displacing visitors onto lands managed by adjacent agencies. Adjacent agencies report increased use from Monument designation. The impacts of adjacent land management practices on resources in the Monument should also be analyzed.

RESPONSE: Due to the limited amount of current and projected use in the Monument (discussed in Economic Conditions, Appendix 19 in the DEIS), displaced use of activities restricted in this Plan (e.g., OHV use) is expected to be low on adjacent agency lands. In order to provide clarity, this Plan has been expanded to provide an analysis of the impacts of proposed actions to local, state and Federal land neighbors including the potential to displace use.

A general discussion of impacts of adjacent land management practices on Monument lands was included in the Cumulative Impacts section in Chapter 4 of the DEIS. In this Plan, the Cumulative Impacts sections in Chapter 3 includes a discussion of impacts from adjacent agencies land management practices on resources within the Monument.

GEN-34

COMMENT: The economic analysis should include impacts associated with the creation of the Monument.

RESPONSE: The purpose of the Environmental Consequences section of the DEIS, including the economic analysis discussion, is to provide a basis for the BLM and the public to compare various options for managing the Monument. The creation of the Monument itself is outside the scope of this Plan.

GEN-35

COMMENT: Current data on how many people visit or go to the Monument and what uses are occurring on Monument lands should be provided.

RESPONSE: Chapter 3 of the DEIS included sections on Visitor Use (page 3.48) and Land Use Permits and Classifications (page 3.51). These sections provide the reader with visitation numbers from 1980 through 1997, the number and type of outfitter operations, and a list of existing visitor facilities. The Land Use section of the same chapter reviews existing rights-of-way, withdrawals, mineral, coal and oil and gas leases, grazing allotments, and transportation system information.

These sections are not repeated in this document. However, the background information in Chapter 3 of the DEIS was used in the analysis conducted in this Plan/FEIS.

GEN-36

COMMENT: There is no indication that the BLM has made any attempt to coordinate proposed land use practices with the surrounding lands. The DEIS is inconsistent with and did not consider numerous Federal, state, and local plans.

RESPONSE: The DEIS included a section on Planning Consistency (page 5.2). That section noted that 10 municipal plans, 2 county plans, 2 regional plans, 16 Utah State agency plans, and 8 Federal agency plans were reviewed, and that no major inconsistencies were identified. Six comments on the DEIS noted concerns regarding consistency with specific plans. Responses to those concerns are found in Chapter 4 of this Plan. This Plan also endorses consistency with Federal, state, and local plans. See the Planning Consistency section in Chapter 4 of this Plan.

GEN-37

COMMENT: It is unclear how the protest and appeal process will work if the Secretary of the Interior signs the Approved Plan/Record of Decision. Having the Secretary sign the Plan circumvents the appeal process.

RESPONSE: The protest and appeals process will work exactly the same as they would if an officer of the BLM were signing the Approved Plan/Record of Decision.

The protest procedures prescribed in 43 CFR 1610.5-2 provide the public with an opportunity to initiate administrative review of perceived oversights or inadequacies in a proposed plan. These procedures are described at the beginning of this Plan. Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval of the Plan may protest. A protest may raise only those issues which are submitted for the record during the planning process.

An appeal (43 CFR Part 4) is an opportunity, provided by the Secretary of the Interior, for a qualified individual to obtain a formal quasi legal review. The review is performed by an independent board who analyzes the procedures followed by an Interior Agency in making a decision. While many decisions may be appealed, planning decisions made under 43 CFR 1600 may not be appealed. Thus, while land use planning decisions can be protested, they cannot be appealed, regardless of who signs the Approved Plan/Record of Decision.

GEN-38

COMMENT: The issue of cumulative impacts on communities and community needs has been inadequately addressed in the DEIS. A community support alternative should have been considered.

RESPONSE: Cumulative impacts to the Monument and to communities are analyzed in the DEIS in Chapter 4, beginning on page 4.47. Impacts on local economies and cumulative impacts are also presented with respect to alternatives in Chapter 4, Table 4.1, on page 4.73 of the DEIS. Chapter 3 of this Plan includes similar analysis of impacts on communities and local economies.

Many of the scoping participants urged the BLM to support local communities through such measures as placement of facilities, funding for infrastructure, providing planning assistance and loans, hiring local people, preventing franchise and chain businesses in local communities, and using local preferences in providing services such as guides and outfitters. They also encouraged the BLM to enter into partnerships with local governments for support of search and rescue and other functions. Comments from the public on the DEIS were similar, and some encouraged the BLM to examine a "Community Support" alternative. The BLM can and does participate in many of these types of activities such as providing assistance to communities for planning, and for search and rescue. However, some of the suggested activities, such as preventing franchise businesses in local communities, are beyond the BLM's authority. The BLM is committed to supporting and cooperating with the gateway communities regardless of the alternative selected. Therefore, a separate Community Support alternative was not analyzed.

GEN-39

COMMENT: The range of alternatives for the DEIS was too narrow and did not cover the full range of possible alternatives.

RESPONSE: Page 2.1 in the DEIS describes the approach used for determining the range of alternatives.

"Alternatives B, C, D, and E describe various ways the provisions of the Proclamation would be applied to direct management of the Monument. Each alternative has a somewhat different emphasis, primarily defined in terms of resource focus, but all afford the high degree of protection of Monument resources required by the Proclamation. As a result, the range of alternatives presented in this Plan is narrower than in standard Bureau of Land Management plans. The DEIS does represent a full range of the alternatives possible within the parameters of the Proclamation."

GEN-40

COMMENT: The following are comments concerning the economic analysis for the DEIS.

A. The DEIS analysis contains unsubstantiated assumptions that bias the economic analysis in favor of the Preferred Alternative and against Alternative D. The impacts seem inconsistent with the data.

B. There is no explanation on page S.27 for how the impact on local communities changes from one alternative to the next. Clarification is needed on growth expenditures and revenues.

C. Southern Utah and northern Arizona should be included in the economic analysis.

D. The DEIS misrepresents the economic significance of "amenity." Amenities are not merely tourist attractions.

E. The economic analysis deserves independent review by a number of economists who work with public land issues.

F. The economic impact of reconstructing existing powerlines to meet non-electrocution standards is not addressed.

G. The "visitor activity categories" selected for economic analysis are biased in favor of motorized recreation.

H. The estimated growth rates for "visitor activity category" bias the economic analysis in favor of motorized use.

I. The DEIS and Utah Governor's Office of Planning and Budget (GOPB) report are based on a number of assumptions that appear to bias the assessment against non-motorized use and against the selection of Alternative D.

J. The economic analysis fails to account for economic benefits that occur distant from the immediate vicinity of the Monument.

K. The economic analysis in the DEIS contains a number of erroneous or misleading statements that should be corrected.

L. The DEIS is in need of a sensitivity analysis of the assumptions used in the economic analysis.

RESPONSES:

A. The BLM provided the assumptions used in the economic analysis. The management focus of each alternative was used to generate a matrix of assumptions for 16 management activities ranging from OHV use to regulating filming. The base budget and personnel available to accomplish Monument management activities remained constant over all alternatives, and does not change for the analysis of this Proposed Plan. Because the management focus of Alternative D was to "maximize protection of the natural environment, while enhancing its remote character by limiting travel corridors and visitation" (DEIS, page 2.39), it was assumed that group size limitation, miles of routes and trails, and extensive allocation of visitors inside the Remote and Rustic Zones would constrain the amount of visitation to the Monument to levels below baseline visitation growth. Under Alternative D, the Monument would be aggressively managed to accommodate 1997 visitation levels, except scenic driving, which was assumed to increase due to additional motorized use in the Enhanced Zone. The other alternatives analyzed anticipated management activities that would accommodate higher visitation to a greater extent across the Monument.

B. A more thorough explanation of the summary information on page S.27 regarding impact to local economies is included in Appendix 19 of the DEIS, which reviews an analysis completed by the GOPB. The GOPB assisted in the review of comments regarding the analysis, and revised the applicable input-output and fiscal impact models based upon additional data and assumptions from this Proposed Plan. The impacts of this Plan are driven by BLM spending and employment, and spending by visitors. The direct, indirect and induced effects of this spending and employment on population, employment, employee earnings, and local government revenues in the Southwest region are the focus of the analysis. The steady operating budget, constant employee base, and fixed facility locations resulted in little variation between alternatives and over time.

C. The five counties that comprise southwestern Utah were selected as the appropriate region for analysis because: (1) the five counties already form a multi-county Planning District of the State of Utah; (2) significant amounts of data have been collected and analyzed at the southwestern Utah regional scale; and (3) the southwestern Utah region has a closed labor market in the sense that 90 percent of the income generated in the region is also received there (GOPB, 1998). The northern Arizona communities of Page, Fredonia and Colorado City were considered for inclusion in the analysis because they also influence economic activity in the region. However, the extent of the effects were considered too small to have a significant impact on the analysis.

D. The models used to generate the socioeconomic impacts identified in the DEIS contain baseline migration assumptions and formulas that address the factors that influence why a county or community is experiencing population growth or decline. These factors do not rely solely upon tourism impacts, but also account for migration due to other "amenity" variables.

E. The BLM and GOPB recognized the need for an independent professional review of the socioeconomic analysis and established a Technical Review Committee consisting of six independent economists. This committee met on three occasions. The committee was also provided information during the preparation of the analysis through electronic mail. The basic components of the models, the assumptions, and the findings of the analysis were reviewed and accepted by the committee prior to the release of the analysis to the BLM. These economists were: Walter Hecox, from Colorado College; Frank Hachman, from the University of Utah; Lecia Langston, from the Utah Department of Workforce Services; Ray Rasker, from the Sonoran Institute; Don Snyder, from Utah State University; and Gil Miller, from Economic Associates of Utah.

F. It is not the intent of Monument managers to require immediate compliance to the raptor protection standards upon adoption of the Approved Plan. As powerlines are upgraded or a raptor problem is documented, compliance with the standards would be expected. Therefore, the line upgrades would be part of ongoing maintenance activities, which already factor raptor protection into construction costs.

G. The visitor activity categories are not biased in favor of motorized recreation; they simply reflect current information categories of use within the Monument. The visitor activity categories were selected by the Monument Planning Team and economic analysts from visitor count data provided by BLM field staff. These counts were based on: (1) the number of people who signed registers; (2) back country permit information; (3) on-site counts conducted by BLM personnel; (4) traffic counters; and (5) personal observations by BLM officials at selected locations. BLM staff recorded the activities that visitors participated in, as well as an average amount of time spent pursuing the activity. In 1997, Oregon State University conducted an informal survey of visitors. This survey assisted in better estimating visitor activities. The categories selected for analysis were based upon the visitor count data and informal survey. Motorized use of 35,000 visitor days in 1997 was included in the "other" category, but not listed in the text of the analysis. This omission has been corrected in this Plan.

H. Because the management focus of Alternative D was to "maximize protection of the natural environment, while enhancing its remote character by limiting travel corridors and visitation" (DEIS, page 2.39), the BLM assumed that group size limitation, miles of routes and trails, and extensive allocation of visitors inside the Remote and Rustic Zones would constrain the amount of visitation to the Monument to levels below baseline visitation growth. Under Alternative D, the Monument would be aggressively managed to accommodate 1997 visitation levels, except for scenic driving, which was assumed to increase due to additional motorized use in the Enhanced Zone. The other alternatives analyzed anticipated management activities which would accommodate higher visitation to a greater extent across the Monument. Eight other National recreation destinations were selected and visitor counts for those areas were analyzed, along with a matrix of management assumptions provided by the BLM, to provide a basis for establishing the Annual Average Rate of Change for the DEIS alternatives.

I. The development of the assumptions are discussed above in G and H. While the assumptions were an important part of the socioeconomic analysis, the results of the analysis were not the sole factor for selection of a preferred alternative or this Plan. The selection of management zones, the transportation network, and other major components of this Plan were based upon the provisions of the Proclamation, FLPMA, the analysis of environmental consequences, and public comment.

J. The intent of the GOPB analysis was to create a comprehensive review of social and economic baseline and trend data for the area surrounding the Monument to support the effects analysis in the DEIS and this Plan. The geographic extent of the analysis includes the area where economic effects could be reasonably assessed with enough confidence to adequately support subsequent decision making. Such analysis becomes overly speculative with greater distance.

An analysis of general benefits and costs that accrue to Americans outside the region from management of public lands is beyond the scope of this Plan, and is addressed in BLM and other Department of the Interior strategic planning documents. The non-market benefits and costs of Monument management are discussed in the **Cumulative Impacts** section in Chapter 3 of this document.

K. The suggested corrections have been incorporated, where applicable, into the new socioeconomic evaluation in this Plan.

L. The application of a sensitivity analysis to consider changes in economic impacts would not affect the development of this Plan. The alternatives were not ranked by the results of the assumptions matrix. Systematically varying visitor activity categories and growth rates would not result in significant changes in results, since the impacts of all of the management alternatives on local government revenues and expenditures are relatively small.

GEN-41

COMMENT: Why was data/information from the preliminary Draft Environmental Impact Statement for Warm Springs not used?

RESPONSE: Many sources of information were utilized in the preparation of the DEIS, as noted by the reference section. The Warm Springs document was a preliminary draft, and had not been released for public review when the DEIS was completed, and thus was not referenced in that document. However, since the preliminary Warm Springs document covered some area in the Monument, many of the relevant data sets such as paleontology, archeology, and soils used to develop the Warm Springs document were also used in the development of this Plan.

GEN-42

COMMENT: Some communities have a concern about having a primitive zone adjacent to their communities.

RESPONSE: The zone boundaries for this Proposed Plan have been changed from those that appeared in the DEIS Preferred Alternative. These zones are based on use, sensitive resources, topography, and other criteria as described in the **Zone Descriptions** section in Chapter 2 of this Plan. These criteria resulted in zones other than primitive in the immediate vicinity of most communities due to topography, use patterns, and other factors. However, the Primitive Zone is still adjacent to some parts of the town of Boulder because the nature of much of the landscape (fractured terrain and remoteness) does not lend itself to more developed zones. In any case, the Primitive Zone only overlays lands within the Monument boundary. The management prescriptions for the Primitive Zone end at the Monument boundary. Lands owned by communities, other land management agencies, or private individuals are not subject to the management prescriptions for the Primitive Zone.

GEN-43

COMMENT: What is the relationship between the Proclamation and FLPMA? The principle direction for management of the Monument should be FLPMA, not the Proclamation. Multiple use should be emphasized.

RESPONSE: FLPMA is still the source for the BLM's authority to manage GSENM. The Proclamation governs how the provisions of FLPMA would be applied and how competing uses would be weighed when applying FLPMA's multiple use mandate. For example, the Proclamation withdrew the entire Monument from mineral entry and decreed that the over-riding purpose of the Monument was to "set apart and reserve" the Monument "for the purpose of protecting the objects identified." The Proclamation, FLPMA, and other laws governing management of the Monument were discussed throughout Chapter 1 of the DEIS and again in Chapter 1 of this Plan. A discussion of multiple use and its relationship to the Monument was included in both.

GEN-44

COMMENT: Why is the No Action Alternative more restrictive than the Interim Management Guidance for the Monument?

RESPONSE: The provisions in the No Action Alternative are not more restrictive than this Guidance. Chapter 2, page 2.1, of

311

the DEIS states, "The No Action Alternative describes the continuation of the current management of the Monument, in which the provisions of the Proclamation and the Interim Guidance issued by the Director of the BLM are applied as proposals are received, and to needs as they occur."

The Interim Guidance did not cover all actions or management decisions necessary to operate and manage the Monument. For actions or issues that were not covered under Interim Guidance, managers had to make decisions and seek further guidance about how to manage the Monument under existing law and the Proclamation. Those decisions are reflected in the No Action Alternative.

GEN-45

COMMENT: VERs should include traditional uses, such as grazing.

RESPONSE: This Plan does address uses such as grazing, but does not characterize all uses as "valid existing rights." As described in the **Valid Existing Rights and Other Existing Authorizations** section in Chapter 2 of this Plan, VERs are those "rights" in existence within the boundaries of the Monument before the Monument was established. VERs were established by various laws, leases, and filings through local, state, and Federal processes. To a large degree, VERs pertain to mining and minerals activities. There are, however, other situations unrelated to minerals (such as rights-of-way) in which the BLM has authorized some use of public land, or has conveyed some limited interest in public land. These authorizations, where they are valid and existed when the Monument was established, would be recognized and their uses would be allowed to continue, subject to the terms and conditions of the authorizing document. By contrast, certain other uses (such as livestock grazing) are authorized under permits which convey no right, title, or interest in the land or resources used. While the Proclamation specifically mentions livestock grazing, the Proclamation does not establish livestock grazing as a "right" or convey it any new status. Livestock grazing would therefore "continue to be governed by applicable laws and regulations other than [the] Proclamation."

GEN-46

COMMENT: The planning criteria were never available for public comment.

RESPONSE: The Guiding Principles were the first step in defining the Planning Criteria. In Planning Update Letter No. 2 (July 9, 1997), the Guiding Principles were outlined and the BLM asked for public comment on those Principles.

The Principles were further refined and sent out for another public review in Planning Update Letter No. 3 "Preliminary Planning Criteria - Scope of the Plan," in August 1997. As stated in Planning Update Letter No. 4 (November 1997), "Our last mailing included a preliminary list of planning criteria. This list is being modified to reflect comments received during the scoping process."

Planning Update Letter No. 5 (January 1998) stated, "The Planning Team began the development of planning criteria early in the process, with the publication of Preliminary Planning Criteria on August 14, 1997. Additionally, a set of Guiding Principles was published in our July 9, 1997 Update. In keeping with the direction of 43 CFR 1610.4-2, we are now publishing the latest set of Planning Criteria, which combines the Preliminary Criteria and Guiding Principles, revised to reflect comments received. These criteria may be added to as we continue drafting the Plan."

These Update Letters were sent to over 3,500 individuals, organizations, Federal, state and local governments on our mailing list at the time. The initial mailing list was comprised of known individuals, organizations, and government agencies (local, state, Federal) who had an interest in this area. As the planning process progressed, additional names were added to this list through participation in meetings, response to publications, and other outreach efforts. The Updates were also posted on our website. We received many comments on the guiding principles and planning criteria that assisted us in finalizing the planning criteria.

GEN-47

COMMENT: The Plan is too general to draw any adequate conclusions.

RESPONSE: The scope of the DEIS and Proposed Plan is necessarily broad, since it is a general framework document that would guide the overall management of activities within the Monument, as well as the use and protection of Monument resources. Subsequent landscape-level analyses and site-specific planning (called project plans) would be tiered from this Plan. Project-level plans would address specific resource issues in specific geographic areas. Detailed environmental analysis would be completed at the time these site-specific plans were developed.

GEN-48

COMMENT: The Proposed Plan should consider the impacts on VERs and governmental functions (search and rescue, waste disposal, law enforcement, etc.).

RESPONSE: As discussed in the **Valid Existing Rights and Other Existing Authorizations** section in Chapter 2 of this Plan, claims for VERs would be evaluated, and honored when determined valid. Under BLM regulations, private land owners have the right to reasonable access to their land, and this would not change under management of the Monument. Decisions on route closures in the Proposed Plan were based on several criteria (**Transportation and Access** section in Chapter 2), one of which was access to private lands. Therefore, VERs would not be affected by actions proposed in this Plan. RS 2477 assertions are discussed in the **Transportation and Access** section in Chapter 2 and in ACC-10.

The BLM has provided temporary monetary support for search and rescue and other issues related to the Monument in both Kane and Garfield Counties. Long term cooperative efforts are being discussed, but would at least be equivalent to the types of cooperation provided by other public land areas in the western United States. Solid waste disposal contracts with the Counties have also been negotiated and will continue. Support activities will continue to be coordinated with the Counties and adjacent land management agencies to facilitate communication and shared resource use into the future.

GEN-49

COMMENT: Why was a "Conservation Biology" alternative not analyzed?

RESPONSE: The DEIS included a discussion of Alternatives Considered but Eliminated from Detailed Analysis. One of these alternatives, on page 2.100 in Chapter 2 of the DEIS, was a "Natural Ecosystem" alternative. As stated, "All of the alternatives analyzed provide protection to natural ecosystems, so a separate Natural Ecosystem Protection Alternative is not analyzed in detail." Though not specifically called a "Conservation Biology" alternative, the philosophy is similar and the goals of protecting habitat, looking at long-term ecosystem viability, and preventing ecological degradation are the same.

These goals are shared by the BLM, and are part of all alternatives proposed for Monument management. The Proposed Plan includes objectives for biological resources, including wildlife, vegetation, and special status species among others. The issues raised in the goals listed above are covered by these objectives. For this reason, a separate conservation biology alternative is not warranted.

GEN-50

COMMENT: No clear definition of Monument purposes, resources, and values has been developed.

RESPONSE: In Chapter 1, page 1.1 of the DEIS, the Introduction states, "The Monument was created to protect a spectacular array of scientific, historic, biological, geological, paleontological, and archaeological objects. These treasures, individually and collectively, in the context of the natural environment that supports and protects them, are the 'Monument resources' discussed throughout this Plan. The terms 'Monument values' and 'Monument objects' have also been used, but because the term 'Monument resources' may be more easily understood, it will be used throughout this document."

GEN-51

COMMENT: Why was spatial analysis and modeling (including connectivity modeling) not done for the Plan?

RESPONSE: Spatial analysis was taken into consideration in the development of the zones and policies in the DEIS and Proposed Plan and the connectivity with adjacent agencies was considered in delineating zone boundaries. Further spatial analysis of impacts on Monument resources, including wildlife, has been completed for the DEIS and are provided in the answers to ACC-13, ACC-14, and BIO-16.

Many resources have the potential for modeling but they require time to develop and do not always result in reliable information. Limited time was available for development of models and evaluation of their usefulness. While the BLM did not do specific resource modeling, discussions with biologists and experts who have worked in this area for years have provided detailed information throughout plan development. This information has been used in the development of zones and the strategies for protection of Monument resources. Additionally, studies have been initiated for modeling vegetation and other resources in the Monument. These studies will provide data that addresses resources specific to the Monument and will aid future management in the protection of these sensitive resources through the **Implementation and Adaptive Management Framework** discussed in Appendix 3 of this Plan.

GRAZ-1

COMMENT: Phase out livestock grazing in the Monument, or no livestock grazing should occur within the Monument.

RESPONSE: The Presidential Proclamation which established the Monument states, "Nothing in this Proclamation shall be deemed to affect existing permits or leases for, or levels of, livestock grazing on Federal lands within the monument: existing grazing uses shall continue to be governed by applicable laws and regulations other than this proclamation." Therefore, this Plan does not address grazing, permits, leases, or levels of livestock grazing. Livestock grazing would continue to be managed under existing laws and regulations. The **Livestock Grazing** section in Chapter 2 of this Plan has a discussion of how grazing permit renewals and allotment managemcent planning would be handled under existing laws and regulations.

GRAZ-2

COMMENT: None of the alternatives in the DEIS restrict livestock grazing.

RESPONSE: The Presidential Proclamation which established the Monument states, "Nothing in this Proclamation shall be deemed to affect existing permits or leases for, or levels of, livestock grazing on Federal lands within the monument: existing grazing uses shall continue to be governed by applicable laws and regulations other than this proclamation." Therefore, livestock grazing shall continue to be managed under existing laws and regulations.

GRAZ-3

COMMENT: Grazing should be regulated under Federal laws; livestock grazing is not in compliance with the Proclamation or Endangered Species Act.

RESPONSE: Livestock grazing within GSENM is being managed pursuant to a substantial body of Federal laws and regulations, such as the Taylor Grazing Act, FLPMA, and the Endangered Species Act. In addition, the Utah State Director for the BLM has developed Standards for Rangeland Health and Guidelines for Grazing Management, which were approved by the Secretary of the Interior in 1997. The Utah Standards and Guidelines apply to grazing management statewide and address habitat for special status species, among other issues. The authorized officer (Monument Manager) shall determine rangeland health for each grazing allotment in the Monument according to these Standards and Guidelines. Where allotment assessments determine that rangeland health is not being achieved, and livestock grazing is determined to be the cause, the authorized officer shall take appropriate action under any applicable legal authorities (including the Taylor Grazing Act, FLPMA, the Public Rangelands Improvement Act, and 43 CFR Subparts 4120, 4130, and 4160). It is under this process that grazing is, and will continue to be, managed to meet the requirements of the Endangered Species Act and other laws and regulations. A discussion of the management of special status species in the Monument, and management actions proposed under this Plan (including surveys) for such species is described in the **Special Status Animal Species and Special Status Plant Species** sections in Chapter 2 of this Plan.

GRAZ-4

COMMENT: Has the BLM considered buying Animal Unit Months (AUMs)? What happens to allotments that are not being grazed?

RESPONSE: Grazing permittees pay the BLM a grazing fee for the privilege of grazing their livestock on public land. These fees are based on the amount of livestock grazed, and the length of time the livestock is grazed on public lands (Animal Unit Months, or AUMs). The BLM does not attach monetary value to these grazing permits. Thus, there is nothing for the BLM to "buy" from grazing permittees.

Should an allotment or a portion of an allotment become available through a voluntary relinquishment or an operation of law, it could be considered for grass banking. Grass banking refers to the setting aside of lands for future grazing use to offset potential future reductions in existing allotments or to facilitate research in grazing methods. The BLM is not obligated to graze the grass bank allotment annually, and use of the grass bank by qualified applicants, permittees, or lessees is within the discretion of the BLM.

GRAZ-5

COMMENT: How is livestock grazing handled in the Plan and in the future? Why wasn't grazing management treated differently between the alternatives? Why is the BLM waiting three years after this plan to address grazing or to remedy any problems? How is grazing on State lands within the Monument handled?

RESPONSE: The Proclamation stated that "Nothing in this Proclamation shall be deemed to affect existing permits or leases for, or levels of, livestock grazing . . . existing grazing uses shall continue to be governed by applicable laws and regulations . . ." Thus, livestock grazing in the Monument would be managed in keeping with applicable laws and regulations, and with the BLM's Standards for Rangeland Health and Guidelines for Livestock Grazing (Appendix 5). The **Livestock Grazing** section in Chapter 2 of this Plan describes, in detail, how grazing uses within the Monument shall be managed. This Plan describes a process for grazing management that provides a single schedule for completion of subsequent NEPA analysis Monument-wide. Alternative ways of managing grazing were not presented in the DEIS, because like other issues (e.g., Wilderness Study Areas) in the Management Common To All Alternatives section of the DEIS, existing laws govern how they would be managed.

The schedule for completion of the assessments and Allotment Management Plans described in Chapter 2 states that they would be completed over a three year time frame. This does not mean that actions (including assessments and activity planning) will not occur for three years. Instead, it means that these grazing management actions will occur on allotments based on the priority basis listed in the **Livestock Grazing** section in Chapter 2 of this Plan. Efforts are currently underway to assess allotments. As stated in the **Livestock Grazing** section, at any time an authorized officer (of the BLM) determines that an area is not achieving the Utah Standards for Rangeland Health, the officer shall determine whether or not existing livestock grazing practices or levels of use are significant factors in the inconsistency and shall take appropriate action under applicable authorities as soon as possible.

The State lands within the Monument were acquired by the Federal government under the Utah Schools and Land Exchange Act (see Chapter 1 for further discussion). Thus, there are no longer state-owned lands within the Monument. Grazing on these former State-owned parcels will be managed subject to the terms and conditions of existing State grazing permits as discussed in the **School and Institutional Trust Lands Administration Lands Acquired** section of Chapter 2.

GRAZ-6

COMMENT: Why was there no grazing allotment map in the DEIS?

RESPONSE: A grazing allotment map was not included in the DEIS because the information was not considered necessary for evaluation of the alternatives presented. A list of allotments and associated information was included in Appendix 22 in the DEIS. This appendix provided the relevant background information necessary to assess the current situation, the management of grazing under existing laws and regulations, and the Environmental Consequences described in Chapter 4. In response to public requests, a grazing allotment map is provided along with a list of allotments in Appendix 6 of this Plan.

GRAZ-7

COMMENT: Impacts on livestock operators and restrictions on access and water developments were not analyzed.

RESPONSE: As stated in the Livestock Grazing section in the DEIS, livestock grazing is governed by laws and regulations other than the Proclamation. For this reason, discussion of livestock grazing was included in the Management Common to All Alternatives section of the DEIS. Likewise, discussion of impacts across alternatives was general, but did include analysis of access and water developments. Page 2.82 of the DEIS describes special access for livestock permittees, among others. Access for the maintenance of livestock range facilities is allowed, as provided in permits issued for allotments. Therefore, access restrictions would not affect a permittees's ability to access developments.

Installation and maintenance of water developments is discussed in each of the alternatives of the DEIS. Protection of Monument resources is a primary concern in management of this area. Maintenance of existing water developments is allowed in the alternatives. New water developments, though limited in the various alternatives, may be used for better distribution of livestock when beneficial to Monument resources as discussed in the **Water-Related Developments** section in Chapter 2 of this Plan. Proper management of grazing allotments is imperative for the protection of these resources. If it was determined that water developments are needed to prevent degradation of Monument resources, they may be allowed in any of the alternatives. Therefore, restrictions on water developments would not cause significant impacts to livestock operators. A discussion of impacts to livestock operators is provided in the Environmental Consequences section of the DEIS and also in Chapter 3 of this Plan.

GRAZ-8

COMMENT: The Taylor Grazing Act does not apply to management of the Monument.

RESPONSE: Section 315 of the Taylor Grazing Act discusses establishment of grazing districts. It states that "...the Secretary of the Interior is authorized...to establish grazing districts...from any part of the public domain...which are not in...national monuments..." The area encompassing GSENM was included in a grazing district prior to establishment of the Monument, so the Taylor Grazing Act does apply.

LAND-1

COMMENT: Explain the utility and water rights-of-way (ROW) policy in the Monument. Communication sites and ROWs should be limited or prohibited. The need for new utility ROWs should be recognized and planned for.

RESPONSE: Title 5 of FLPMA allows for the authorization of new ROWs (including communication facilities) on public lands. Nothing in the Proclamation precludes this from occurring, so long as Monument resources are protected. Approval of new ROWs in the Monument would be determined on a case-by-case basis.

Proposals for new ROWs would be reviewed for conformance with zone criteria in the Approved Plan. Where zone criteria do not prohibit new ROWs, these uses could be approved through NEPA analysis (see the **Rights-of-Way** section in Chapter 2 of this Plan for a description of the ROW policy in the various zones).

Utility lines and communication facilities are authorized under ROW grants which include a variety of terms, conditions, and stipulations. These terms, conditions, and stipulations regulate the construction, operation, and maintenance activities of the authorized ROWs and are developed when site-specific environmental analysis occurs.

LAND-2

COMMENT: Explain the land acquisition policy in the Monument.

RESPONSE: As stated in the **Non-Federal Land Inholdings** section in Chapter 2 of this Plan, the BLM would consider land exchanges and acquisitions as long as the current owner is a willing participant and as long as the action is in the public interest, and is in accordance with other management goals and objectives of this Plan. The action must also result in a net gain of objects and values within the Monument, such as wildlife habitat, cultural sites, riparian areas, live water, threatened and endangered species habitat, or areas key to the maintenance of productive ecosystems. The action may also meet one or more of the following criteria:

- ensures the accessibility of public lands in areas where access is needed and cannot otherwise be obtained
- is essential to allow effective management of public lands
- results in the acquisition of lands which serve a national priority as identified in national policy directives

All land exchanges and acquisitions would be subject to valid existing rights as determined by the BLM.

LAND-3

COMMENT: Did the BLM analyze utility corridors? Why wasn't the Western Utility Corridor Study considered?

RESPONSE: The Western Regional Corridor Study (completed in 1992) was taken into consideration in the development of the DEIS and this Plan. It is important to note that the study is not a decision document, rather it is a document which the BLM committed to use as reference when considering land use decisions. The study identified two recommended corridors within the Monument: Cottonwood Canyon Corridor and the Navajo-McCullough Corridor. These "corridors" are routes with existing utility lines, but they have not been officially designated by the BLM. The study recommending these two corridors was completed before Monument designation. Given the purposes outlined in the Proclamation (to protect scientific and historic objects), designating utility corridors in these areas that traverse the core of the Monument is not considered appropriate.

With passage of Public Law 105-355 on October 31, 1998, a utility corridor was designated along Highway 89 in Kane County. Rights-of-way throughout the Monument, including within the designated and recommended corridors, would continue to be considered on a case-by-case basis after site-specific environmental analysis and determination of their conformance with the Approved Plan.

LAND-4

COMMENT: The provision for one access route per parcel on page 2.83 of the DEIS contradicts local safety ordinances.

RESPONSE: The criterion on subdivision access route(s) has been rewritten in this Plan to address any conflicts with local codes and/or ordinances (see the **Rights-of-Way** section in Chapter 2 of this Plan). In general, the BLM would authorize only one access route to private land parcels unless public safety or local ordinances warrant additional routes. Private land owners would be required to coordinate the development of access routes across public lands in order to prevent a proliferation of routes. Site specific NEPA analysis would be required, including reasonable terms and conditions as necessary to protect the public interest and meet the objectives of this Plan.

LAND-5

COMMENT: How will community infrastructure needs be accommodated?

RESPONSE: As stated in the **Utility Rights-of-Way and Communication Sites** section in Chapter 2 of this Plan, Monument managers are committed to working in cooperation with local communities and utility providers to identify short-term and long range community needs which could affect Monument lands and resources. Community projects which require public lands access or use would be subject to necessary project level environmental analysis. The BLM would work with the project applicant to meet the Approved Plan objectives. Alternate locations for proposed projects would be identified when unavoidable conflicts arise. Such projects would be focused in appropriate zones (as described in the **Utility Rights-of-Way and Communication Sites** section in Chapter 2 of this Plan) in order to protect Monument resources.

LAND-6

COMMENT: Why was there no assessment of impacts of existing utilities, including maintenance and future upgrades?

RESPONSE: Impacts from existing powerlines and other utility facilities were evaluated prior to their installation, and prior to Monument designation. Maintenance of these existing utilities is allowed for in accordance with established rights-of-way agreements. Impacts of existing utilities and maintenance would not vary by alternative, so would not facilitate comparison among alternatives. Future utility rights-of-way are discussed by zone in this Plan. Regardless of which zone a project is proposed in, all projects would be evaluated on a case-by-case basis with appropriate NEPA analysis as they are submitted to the BLM. Zone criteria and utility needs of communities surrounding the Monument would be taken into consideration in determining which future projects would be approved.

LAND-7

COMMENT: The statement that an increase in voltage of the Cottonwood powerline could occur on existing structures is incorrect.

RESPONSE: The DEIS stated on page 4.51 that "no new structures or installations [would] be needed" for the upgrade of the Cottonwood Canyon powerline. This proposal refers to a December 1975 application to increase the voltage in the Cottonwood Canyon powerline from 245-kilovolts to 345-kilovolts (filed by Utah Power and Light, a subsidiary of PacifiCorp). A more specific description of the proposal is that it would raise the cross arms five feet on the existing wood towers, add three insulators to each conductor, bundle the conductors, and add one X-brace to each existing tower for increased support. There has been no subsequent application filed for this proposed upgrade. As stated in the **Rights-of-Way** section in Chapter 2 of this Plan, subsequent environmental analysis and a determination of conformance with this Plan would be required before any action is taken.

LAND-8

COMMENT: The Washington County Water Conservancy District has plans to develop water from Lake Powell. How will the pipeline form Lake Powell to Scnd Hollow Reservoir be accommodated?

RESPONSE: No application has formally been filed for the Lake Powell to Sand Hollow water pipeline. However, the tentative route would follow Highway 89 for most of its length. Per Public Law 105-355, signed by President Clinton on October 31, 1998, a utility corridor was designated along Highway 89 in Kane County, including that portion of Highway 89 within the Monument. The utility corridor extends 240 feet north from the center line of the highway, and 500 feet south from the center line of the highway. Location of the proposed water pipeline within this corridor is a possibility

Subsequent environmental analysis would be required on any specific water pipeline proposal. A determination as to their conformance with this Plan would also be required.

REC-1

COMMENT: Comments on group size ranged from "group size limits of 12 people and/or animals are too restrictive in the Primitive Zone" to "group size limits are not restrictive enough."

RESPONSE: Based on public comment and a re-evaluation of how group size best fits in with zone criteria, group size limits have been modified for this Plan. For example, group size limits in the Frontcountry Zone were lifted because of the interest in focusing visitation in this area and the difficulty in regulating group size on major highways. Further, group size limits in the Primitive Zone were changed from 12 people and/or animals to 12 people and 12 animals. This is consistent with adjacent National Park Service units. A discussion of group size limits for this Plan is included in the **Group Size** section in Chapter 2.

REC-2

COMMENT: Clarify what kinds of facilities will be developed along the Burr Trail, Cottonwood Wash Road, and in the Frontcountry Zone. Explain what the facilities are and explain how decisions to provide facilities will be made. The Burr Trail should not be in the Frontcountry Zone.

RESPONSE: A full discussion of facilities can be found in the **Facilities** section in Chapter 2. In the Frontcountry Zone, in addition to existing facilities, visitor day use facilities could include pullouts, parking areas, trailheads, toilets, fences, picnic areas, and scenic overlooks.

The Burr Trail has been changed from the Frontcountry Zone to the Passage Zone in this Plan because the BLM was persuaded by public comment that its character is more like that of other routes in the Passage Zone. Parts of the Cottonwood Wash Road are also in the Passage Zone. The condition of routes and/or distance from communities in the Passage Zone makes it a secondary zone for visitation, where facilities may occur, but visitation would not necessarily be directed or encouraged. Similar facilities as allowed in the Frontcountry Zone could be provided for resource protection, visitor safety, and for the interpretation of Monument resources.

REC-3

COMMENT: Impacts to outfitters and guides that use pack stock were not adequately addressed given the group size restrictions in the Primitive Zone.

RESPONSE: Page 4.41 of the DEIS provides a discussion of impacts to outfitters and guides. Although the discussion does not specifically distinguish between impacts to outfitters and guides that use pack stock and those who do not, a discussion of how group size limits would restrict the size of the outings that outfitter and guides offer was included. The BLM does recognize that the impacts of limiting group size to "12 people and/or animals" would have been greater on those outfitters and guides that use pack stock, and this issue has been taken into account in developing group size limits for this Plan. Group size limits in the Primitive Zone of this Plan have been changed to provide for 12 people and 12 animals, as consistent with backcountry limits for adjacent National Park units. Chapter 3 of this Plan includes a discussion of impacts to outfitters and guides. Limitations on group size and allocations are discussed in this section.

REC-4

COMMENT: The statement that group size is the same as other Federally managed areas is false in the DEIS.

RESPONSE: Group size limits in the Primitive Zone have been changed for this Plan to 12 people and 12 animals. This makes this zone consistent with the portion of the Escalante Canyons managed by Glen Canyon National Recreation Area and with backcountry limits in Capitol Reef National Park. Group size limits are not necessarily consistent with other units such as Dixie National Forest.

REC-5

COMMENT: Horses and llamas have been restricted even though they do not have as much impact as vehicles.

RESPONSE: The BLM recognizes that the impacts of horses and llamas are different from vehicles. This Plan allows horses and llamas to travel cross-country, while vehicles may not. Horses and llamas are permitted in all zones, except where specifically excluded such as in relict plant areas. The restrictions on the number of recreational pack stock in the Primitive Zone are intended to keep impacts in these areas low.

REC-6

COMMENT: Why is there no differentiation in impacts between motorized and mechanized vehicular use?

RESPONSE: The DEIS discusses motorized and mechanized use as one type of impact. While the two modes of transportation are quite different and the magnitude of impact may differ, the types of impacts are similar. Both can cause damage to resources that are sensitive to surface disturbance, particularly biological soil crusts, special status plant species and other vegetation. So, for purposes of the decision to prohibit cross-country travel of both modes of transportation to protect Monument resources, and for purposes of analyzing that decision's impacts, the differences are not considered significant.

REC-7

COMMENT: What facilities (such as toilets and water) will accommodate increased visitation?

RESPONSE: The Visitor Facilities in the Monument section in Chapter 2 in this Plan, describes facilities that would be provided for each zone. As the focal point for visitation, facilities in the Frontcountry Zone could include pullouts, parking areas, trailheads, toilets, fences, and picnic areas. Similar facilities could be provided in the Passage Zone, but only those necessary to protect resources, educate visitors about Monument resources, or for public safety. In the Outback Zone, small interpretive signs to educate the public about a particular resource or safety sign may be installed at limited sites. Other facilities could be allowed for the protection of resources where other tools to protect resources could not be used. In the Primitive Zones limited signs could be allowed for resource protection or visitor safety. Such small directional signs may be needed, but would be rare. Water, toilets, and other visitor amenities would not be provided in the Primitive Zone.

REC-8

COMMENT: Various comments on special/competitive events were received ranging from "don't allow any special/competitive events" to "special/competitive events should be allowed throughout the Monument." Specific requests to continue the Outlaw Trail Ride were received.

RESPONSE: Competitive events would not be allowed anywhere in the Monument as described in the Competitive and Special Events section in Chapter 2 of this Plan. Special events, such as cultural or educational events, may be approved if they meet other zone requirements. The Outlaw Trail Ride is not considered a competitive event, but is a special event, under the BLM Special Recreation Program.

REC-9

COMMENT: Why were outfitters and guides allowed in the Landscape Research Zone and not in the Transition Zone in Alternative C of the DEIS?

RESPONSE: The Transition Zone in Alternative C was designed to include areas with little evidence of past disturbance and use. The management emphasis for this zone was to keep use low. One way to keep use low was to not permit outfitter and guide services in this zone.

REC-10

COMMENT: How will visitor carrying capacity be determined and what is the baseline? How will allocation of visitors be implemented in the future?

RESPONSE: In conjunction with universities, the BLM is currently assessing backcountry recreation experiences and also inventorying backcountry campsites. These inventories, surveys and studies provide a baseline in order to develop an ongoing monitoring program and to assist in prioritizing areas that may require more restrictive management. No specific allocations for visitors are proposed in this Plan, but this could occur at a future time. In specific areas where excessive numbers of visitors would lead to overcrowding or would damage fragile resources, a limit on the total number of visitors in a given area at a given time would be established with appropriate NEPA analysis. A discussion of how allocations may be determined in the future is included in the **Recreation Allocations** section in Chapter 2 of this Plan.

REC-11

COMMENT: Clarify the campfire restrictions outlined in the DEIS. A variety of comments on campfires were received ranging from "campfires should be restricted further" to "campfires should not be restricted in the Escalante Canyons."

RESPONSE: Backcountry inventories are currently underway in the Monument to determine where and how many campsites are in the Escalante Canyons and other backcountry areas. These inventories note whether campsites are present and what type of impacts are present or absent. Campfire evidence, human caused tree damage (such as chopping), and human waste are some of the impacts noted.

Campfire impacts are present in many of the inventoried sites especially those in the Escalante Canyons and Paria/Hackberry Canyons. Over 90 percent of campsites associated with alcoves had campfire impacts. Campfire impacts have the potential to adversely impact archaeological sites associated with alcoves. As a result, campfires would not be allowed in the Escalante and Paria/Hackberry Canyons and in other sensitive areas identified in the **Relict Plant Communities and Hanging Gardens** section in Chapter 2 of this Plan. Given the focus of visitors in the Frontcountry and Passage Zones, and the potential for proliferation of campfire impacts, campfires would only be allowed in designated fire pits, designated fire grates, or mandatory fire pans in those zones. Where campfires are allowed, fire pans would be encouraged in the Outback and Primitive Zones.

REC-12

COMMENT: What is the mountain bicycle policy? Why are there no mountain bicycle trails identified in the Plan, especially because impacts are lower than motorized vehicles?

RESPONSE: Mountain bicycle use was carefully considered as part of the overall transportation system. While the mode of transportation is quite different than that of motorized vehicles, mountain bicycles and other mechanized travel can cause damage to resources sensitive to surface disturbance, particularly biological soil crusts, special status plant species, and other vegetation. Therefore, use is limited to designated routes and would not be allowed on trails or cross-country.

REC-13

COMMENT: Keep trails out of riparian areas where possible, where not possible; place away from streams.

RESPONSE: As discussed in the **Riparian** section in Chapter 2 of this Plan, where trails are permitted, they would be kept out of riparian areas wherever possible. Where this is not possible, trails would be designed to minimize impacts. Design provisions may include: placing trails away from streams, using soil stabilization structures to prevent erosion, and planting native plants in areas where vegetation has been removed. Vegetation may also be used as a natural barrier to discourage visitors from leaving delineated trails in sensitive areas.

To protect areas of critical resources, barriers may be constructed to prevent entry and/or trails may be temporarily closed to restore/revegetate degraded areas.

REC-14

COMMENT: Why are no trails or routes identified for specific users to create a complete recreational system?

RESPONSE: While recreation would be accommodated, and in some areas developed, within the Monument, the intent of these activities would be to contribute to the protection and understanding of Monument resources. The development of an extensive recreational system that provides routes and trails to accommodate each recreational user group would not meet the overall goals of limiting developed recreational sites to small areas of the Monument where visitors can experience, and come to better understand, the scientific and historic resources without serious impacts to the resources themselves. Recreational uses have been accommodated in this Plan to the extent considered consistent with the purposes outlined in the Proclamation.

REC-15

COMMENT: A "Full Recreational Development" alternative, or more economically beneficial alternative, was not considered. Consequently, Alternatives B through E have minimal to negative economic benefit for impacted communities when compared with the No Action Alternative.

RESPONSE: The DEIS explains on page 2.97 why a "Full Recreation Development" alternative was not analyzed in detail. The Proclamation gives foremost regard to the scientific and historic objects of the Monument. Visitor use must be secondary to the protection of Monument resources under the Antiquities Act mandate to protect objects of historic and scientific value. While Alternative E emphasizes opportunities for visitors, it does so while complying with the goal of protecting Monument resources. A "Full Recreational Development" alternative would heavily emphasize recreation, and could include development of new mechanized or motorized trails, construction of new aircraft landing sites, provisions for extreme competitive events with accompanying facilities in the Monument's interior capable of accommodating large numbers of people. This scenario would place Monument resources at high risk of destruction or degradation. Emphasizing recreation over protection of Monument resources is not considered a reasonable alternative, and is not analyzed further.

REC-16

COMMENT: How far can vehicles be parked from a designated route for camping? Will there be other car camping guidelines/restrictions?

RESPONSE: Except in Wilderness Study Areas, or other identified areas, motorized or mechanized vehicles could pull off of designated routes up to 50 feet to park or disperse camp in the Outback Zone. Vehicles would be required to use designated pull-offs and parking areas in the Frontcountry and Passage Zones. Camping in developed campgrounds or in designated primitive camping areas only would be allowed in the Frontcountry and Passage Zones. Dispersed primitive camping would be allowed in the Outback Zones and Primitive Zones, although vehicle camping in the Primitive Zone is not permitted. Permits would be required for all overnight use. See the **Camping** section in Chapter 2 of this Plan for a more complete description. Group size restrictions for zones and recommendations for campfires also apply to car camping.

WAT-1

COMMENT: If the BLM is going to acquire water, how will it be done? How will the BLM protect instream flows?

RESPONSE: The BLM could obtain water for Monument facilities or protection of Monument resources in several ways. This topic is discussed in the **Water** section in Chapter 2 of this Plan. The reader is urged to review this section for more details. The acquisition of water rights will be accomplished in full compliance with State and Federal law. The answer to this question, however, depends in part on the nature of the intended use. Following is a synopsis.

1. Water needed for Monument facilities.

The BLM may obtain water through the normal appropriative water rights process provided under Utah State water law. This would apply mainly to providing water for Monument facilities, such as visitor centers, campgrounds, and administrative offices.

2. Water needed as instream flows for Monument resources

A summary of the strategy outlined in Chapter 2 for assuring water availability for Monument resources is as follows (see the **Water** section in Chapter 2 for more detail):

(1) **Ensure that land management policies protect water resources.** Since much of the water important to the Monument falls as precipitation within the Monument, its continued availability can be ensured by appropriate land management policies within the Monument. The BLM will exercise its existing land management authorities to protect and retain all available water and natural flows in the Monument. Several decisions described in sections of this Plan are designed to meet this objective.

(2) **Monitor to ensure water flowing into the Monument is adequate to support Monument resources.** The purpose of the above measures is to protect water that originates in the Monument or water after it enters the Monument boundary. While these measures are currently considered adequate to ensure the continued availability of water to support Monument resources, the BLM will also assess whether the water flows coming into the Monument continue to be adequate. This would be part of an overall strategy to assess the status of water resources within the Monument. The BLM would work with the Water Resources Division of the United States Geological Survey, the Utah Department of Natural Resources, and others to gather comprehensive information concerning precipitation, surface water flows, and subsurface water flows into and out of the Monument. This would include establishing additional stream-gaging stations at selected locations, and continued inventorying of water sources such as seeps, springs, and wells. Established climate-data stations would be an integral part of the hydrologic monitoring network.

(3) **Other options for assuring water availability, if needed.** At any point that the above data collection and assessment effort suggests that adequate water to protect Monument resources is not entering the Monument, or that water is otherwise being depleted to the detriment of the Monument, other measures for assuring water availability would be taken. These include: cooperating with Federal agencies that may already have Federal reserved water rights, working with the State of Utah, and other strategies described in Chapter 2 of this Plan.

WAT-2

COMMENT: What is your water development policy? Various comments ranging from "water developments should not be allowed" to "water developments should be allowed for livestock and wildlife purposes" were received.

RESPONSE: Development of water resources may be associated with building of visitor services. Major visitor services and facilities would be located outside of the Monument within the communities, thus water would come from the municipal supply. Limited visitor facilities (such as toilets) could be allowed inside the Monument in certain zones and any water needed for these facilities would be acquired through the standard application process through the Utah Division of Water Rights (discussed in the **Water** and **Facilities** sections in Chapter 2 of this Plan).

Water developments for community culinary water needs could be considered in appropriate zones if the applicant could demonstrate that the development would not affect Monument resources. This policy is discussed in the **Utility Rights-of-Way and Communication Sites** section in Chapter 2 of this Plan.

Other water developments could be used as a management tool for better distribution of livestock when beneficial to Monument resources or to restore or manage native

BEST COPY AVAILABLE

species or populations. These could be done as long as streams or springs would not be jeopardized or dewatered and when there is not other means to achieve the above objectives (discussed in the **Water-Related Developments** section in Chapter 2 of this Plan).

WAT-3

COMMENT: Explain how the description of perennial streams was arrived at in the DEIS.

RESPONSE: Determination of perennial streams and segments is based on historic data from United States Geological Survey (USGS) stream-gaging stations, hydrological observations, and classifications from USGS topographic quadrangle maps. Following is a discussion of the perennial streams in the Monument.

Perennial streams in the Monument within the Escalante River drainage include the Escalante River below the town of Escalante, Mamie Creek, Sand Creek, Calf Creek, Boulder Creek, and Deer Creek. During drier years, The Gulch, including Sleep Creek, may become intermittent. The only other perennial stream within the Escalante River drainage inside the Monument is the last mile or so of Harris Wash before the stream leaves the Monument and passes into the Glen Canyon National Recreation Area. Comments received on the DEIS suggest that the lower part of Horse Canyon, just above its confluence with lower Death Hollow, may also be perennial.

Most of the main stem of the Paria River within the Monument (about 30 river miles) flows on a perennial basis, but there are small reaches near the upper and lower extremities of the portion of the river within the Monument that are typically dry. The flowing reaches are fed by subsurface flows, springs and other groundwater expressions, and by bank storage after high flows. A reach of about 4 miles of Cottonwood Creek is also perennial in this drainage, but this creek normally is dry about 2 miles above its confluence with the Paria River. This portion of Cottonwood Creek is also kept flowing by springs and other surface expressions of groundwater. These gaining reaches of the Paria River and Cottonwood Creek are followed by losing reaches, however, where they each become intermittent streams, flowing only subsequent to precipitation events. Particularly during the irrigation seasons, the Paria is depleted seriously but still flowing when it reaches the northern Monument boundary. Shortly after entering the Monument, however, it commonly dries up for about 1 mile, then reappears and flows continuously until a point about 4 miles from where it again leaves the Monument boundary.

The only perennial streams within the Kaiparowits composite drainage are an approximately 8 mile section of Last Chance Creek (including the lowest 1 mile of one of its tributaries, Drip Tank Canyon) and a 1 mile stretch in the lower portion of Croton Canyon.

WAT-4

COMMENT: How will the BLM protect water quality?

RESPONSE: The BLM would work with the State of Utah, Department of Environmental Quality (UDEQ), Utah Division of Water Quality (UDWQ) to accelerate development of total maximum daily loads, or TMDL. TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water as required by section 303(d) of the Clean Water Act. The BLM is currently engaged in a water-quality monitoring program at 60 sites within the Monument, in conjunction with the UDWQ, to ensure that State and Federal water-quality standards will be met. The BLM would partner with UDEQ/UDWQ as water quality improvement programs are developed. A discussion on total maximum daily load and Section 303(d) of the Clean Water Act is included in the **Assuring Water Quality** section of Chapter 2 of this Plan.

WAT-5

COMMENT: Water rights should also be regarded as valid existing rights and described as such in the Proposed Plan.

RESPONSE: Water rights are not included in the section **Valid Existing Rights and Other Existing Authorizations** because they are granted through Utah State laws and regulations. All waters in Utah are public property. A water right is a right to the use of water based upon (1) quantity, (2) source, (3) priority date, (4) nature of use, (5) point of diversion and (6) physically putting water to beneficial use. Utah water rights are based upon the Doctrine of Appropriation, which is first in time are first in right. This means those with earlier priority dates who have continuously used the water since that time have the right to water from a certain source before others with later priority dates. The BLM has no authority to change priority dates or affect existing water rights. Access to develop water rights may be an issue. If access is needed across BLM land, such access would be handled as described in the **Rights-of-Way** section in Chapter 2 of this Plan.

WAT-6

COMMENT: What are 303d waters and how are they addressed in the Proposed Plan?

RESPONSE: Section 303(d) of the Federal Clean Water Act addresses water bodies and courses that are not "fishable, or swimable." A 303(d) body of water is one that has been identified as possibly being in violation of state water quality standards. Section 303(d) requires each state to identify such waters and to develop total maximum daily loads (TMDL) for them, with oversight from the U.S. Environmental Protection Agency. The TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water. A complete discussion of 303(d) waters is found in the section on **Assuring Water Quality** in Chapter 2 of this Plan.

WAT-7

COMMENT: Why weren't the Kane County Water Conservancy District Plan (July 1997) and the Utah State Water Plan - Western Colorado River Basin Committee Review Draft (May 1998) reviewed or referenced in the DEIS?

RESPONSE: The Kane County Water Conservancy District Plan (July 1997) and the Utah State Water Plan - Western Colorado River Basin Committee Review Draft (May 1998) are referenced in Chapter 5, page 5.3 (Consultation and Coordination) of the DEIS. These plans were reviewed for planning consistency with the DEIS. They are also considered as part of the consistency review in Chapter 4 of this Plan.

WSA-1

COMMENT: Manage all Wilderness Study Areas as Wilderness.

RESPONSE: Wilderness Study Areas (WSAs) were established under the authority of Section 603(c) of FLPMA. Through this law Congress directed the BLM to identify areas with wilderness characteristics and report back to Congress with recommendations. Once Congress designates an area as Wilderness, the BLM is authorized to manage it under the provisions of the Wilderness Act. However, before Congress takes action to designate a WSA as Wilderness, the BLM does not have the authority to manage these areas under the Wilderness Act.

Section 603(c) of FLPMA states that WSAs are to be managed in a manner that does not impair their suitability as Wilderness subject to the continuation of certain uses such as grazing. To comply with this mandate the BLM established Interim Management Policy (IMP) and Guidelines for Lands Under Wilderness Review which have been added to the BLM Manual System (BLM Manual H-8550-1). This BLM Manual provides detailed examples of how the Congressional mandate for WSA management is to be implemented and all BLM WSAs, including those in the Monument, must be managed in accordance with this policy.

WSA-2

COMMENT: How do the zones affect WSAs? Why aren't all WSAs in the Primitive Zone?

RESPONSE: Section 603 (c) of FLPMA requires that WSAs be managed in a manner that does not impair their suitability as Wilderness, subject to the continuation of certain uses such as grazing. To comply with this mandate the BLM established IMP and Guidelines for Lands Under Wilderness Review, which have been added to the BLM Manual System (BLM Manual H-8550-1). The BLM's IMP Manual provides detailed examples of how the Congressional mandate for WSA management is to be implemented. All BLM WSAs, including those in the Monument, must be managed in accordance with this policy. To the extent that zone management prescriptions are consistent with the policy in the BLM's IMP Manual, activities in WSAs would be carried out in accordance with those zone prescriptions. However, those activities in WSAs that are permissible under zone management prescriptions but do not conform with the BLM's IMP Manual would not be permitted. In the future, should Congress legislate the release of WSAs from the requirements of section 603 (c) of FLMPA, they would be either be managed under the Wilderness Act if Congress designates them Wilderness, or the zone management prescriptions specified in the Approved Monument Management Plan.

WSAs and the Primitive Zone proposed in this Plan are fundamentally different designations. The Primitive Zone of this Plan is a set of management prescriptions that have been arrived at as a result of the land use planning process which involves balancing manageability considerations, competing resource values, the requirements of the Proclamation, and applicable laws. The delineation of the boundaries for this Primitive Zone were determined by a combination of landscape and terrain features which can accommodate the management prescriptions appropriate to the zone.

The WSAs in the Monument, in contrast, are the product of an inventory, not a land use plan. The inventory which established these WSAs only considered the presence or absence of wilderness characteristics, not competing resource values, manageability considerations or resource quality. The delineation of WSA boundaries was determined by the naturalness of the area, not landscape or terrain features or a need to exclude incompatible resource uses.

The differences in WSA and Primitive Zone boundary delineation, designation process, and purpose, account for boundaries which do not completely coincide. Further discussion of WSAs is included in the **Wilderness Study Area** section in Chapter 2 of this Plan. A discussion of the criteria used to delineate the Primitive Zone can be found in Chapter 2.

WSA-3

COMMENT: Why were new areas of Wilderness in the Monument not recognized? Why were WSAs not considered for release from WSA designation? Wilderness should be used as management tool.

RESPONSE: The BLM does not have the authority to designate lands in the Monument as Wilderness. The Wilderness Act of 1964 states that Wilderness can only be designated by an Act of Congress. In section 603 of FLPMA, Congress directed that public lands which have wilderness characteristics shall be managed in a manner so as not to impair the suitability of such areas for preservation as Wilderness until Congress determines otherwise. Only Congress may release lands from WSA status. Section 603 of FLPMA also authorized the BLM to manage Wilderness under the provisions of the Wilderness Act. Should Congress designate Wilderness in the Monument, the BLM would manage such areas under the provisions of the Wilderness Act.

WSR-1

COMMENT: Some people commented that all 25 eligible river segments should be determined suitable to protect the rivers and water resources. Others commented that none of the eligible segments should be found suitable.

RESPONSE: The suitability determination process, while guided by specific factors, is subjective and left to professional judgement. The BLM carefully considered all relevant information, including input received during public comment, and evaluated segments for suitability. Although we received comments stating that all or none of the eligible segments should be suitable, there was not enough accompanying documentation to convince the BLM to make changes. A more detailed discussion of the factors considered in the suitability evaluation is included in Appendix 11 of this Plan.

WSR-2

COMMENT: Various comments/questions were received regarding the impacts of Wild and Scenic River (WSR) designation. These include:

A. Effects of WSR designation on a permittee's ability to access existing range improvements, develop new range improvements, and consequences on other factors such as forage use limitations should be discussed.

B. Effects on private lands from WSRs should be discussed.

C. The DEIS states, "substantial public use puts Monument resources at high risk" and it states, "Designation would enhance the recreation values for this river system by keeping the canyon system intact and desirable for hiking." These statements are contradictory. It should be recognized and stated that designation may actually have a negative effect on specific segments.

D. Would Wild or Scenic River designation for the Paria River or Cottonwood Creek (or elsewhere) impair PacifiCorp's ability to operate, maintain, and upgrade facilities?

E. The DEIS states, "Designation would ensure that our knowledge would be enhanced by providing an additional reason for scientific study." How is this statement true compared to no designation?

F. There is a misleading statement in Appendix 5 (pages A5.9 and A5.22): "Designation would enhance the viability of the riparian communities." Designation alone would not do anything for the viability of the riparian communities, and in fact may hinder the viability of such communities by inviting increased visitors in the river segments.

G. Justify costs as a reason to drop river segments.

RESPONSE: It is important to note that this Plan does not designate any Wild and Scenic Rivers. WSRs may only be designated by Congress or the Secretary of the Interior at the request of the State Governor. This Plan only makes determinations about which segments are suitable for recommendation to Congress. The responses below refer to potential effects that may occur if Congress or the Governor requested the Secretary to designate.

A. Grazing is permitted on rivers designated as wild, scenic, or recreational, but must be managed to enhance the values for which the river was designated. Thus, livestock grazing and agricultural practices may continue at a level similar in nature and intensity to those present in the area at the time of designation, as long as outstandingly remarkable values are protected.

B. Under the WSR Act, designation neither gives nor implies government control of private lands within the river corridor. Although Congress (or the Secretary of the Interior for 2(a)(ii) rivers) could include private lands within the boundaries of the designated river area, management restrictions would not apply.

C. While many of the Nation's rivers (including Wild and Scenic Rivers) have received increased use in recent years, the BLM is unaware of any research indicating that designation increases use. Even if designation did increase use, however, designation could also improve the ability to manage recreational uses and values through the increased focus that a WSR management plan provides.

D. Wild and Scenic River designation seeks to protect and enhance a river's current condition. Existing powerline or communication transmission rights-of-way could continue to be used and maintained upon designation. New proposals and upgrades would be evaluated in light of impacts to river values.

E. Wild and Scenic River "status" may provide additional rationale for studying those outstandingly remarkable values for which each segment was found eligible.

Designated rivers may also help prioritize research projects.

F. The Wild and Scenic Rivers Act states, "...selected rivers of the Nation which, with their immediate environments, ... shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected ..." There is a chance that without wild and scenic river designation, rivers could be dammed or diverted jeopardizing the instream flow in downstream segments. Therefore, designation could protect the viability of riparian communities by protecting the instream flow upon which these "immediate environments" rely.

G. The BLM determined that the Escalante and Paria river systems could better be managed by concentrating available management capabilities on those segments that contribute most to riverine values. However, costs were not the major factor in determining suitability of eligible segments. The primary factor in finding certain segments non-suitable was that they did not make substantial contributions to the National Wild and Scenic Rivers System or had management conflicts (see Response WSR-6).

WSR-3

COMMENT: Various comments were submitted regarding clarifications of the WSR planning process. These include:

A. Why were Wild and Scenic River studies included in your planning process?

B. Why were tentative classifications changed between eligibility and suitability to be consistent with the zones?

C. How did Wild and Scenic River planning fit in the Monument Plan process?

D. The Presidential Proclamation states that the Monument is subject to valid existing rights and does not reserve water as a matter of Federal law, so how does a WSR designation create an instream flow reserved right?

E. Few WSRs are needed because, like the ACECs, the general protection provided by the Monument designation is sufficient.

RESPONSE:

A. BLM Manual Section 8351 directs the BLM to evaluate all potentially eligible river segments within the resource management planning process to determine eligibility, tentative classification, protection requirements, and suitability under Section 5(d)(1) of the Wild and Scenic Rivers Act.

B. The primary considerations used in classification changes from the eligibility phase to the suitability evaluation phase were management prescriptions proposed for the segments under the Monument Management Plan. For instance, much of the Paria River was classified as "recreational" in the eligibility phase as opposed to "wild" because of current motorized use. The DEIS determined that the Paria River would be managed in the future to meet certain prescriptions for primitive recreation and would not allow motorized access. Therefore, the recommended classification for much of the Paria suitability is "wild" in accordance with proposed management.

C. The eligibility phase of the WSR study was based on the presence or absence of outstandingly remarkable values and free flowing characteristics determined through an inventory. Preliminary eligibility findings were released for public review prior to the release of the DEIS. After review of public comment, final eligibility findings were released (see Appendix 4 of the DEIS for more detail). The suitability phase considered the eight factors outlined in BLM Manual Section 8351 and the Wild and Scenic River Act and management prescriptions outlined in the DEIS alternatives. Draft suitability recommendations were released with the DEIS in November 1998. Comments on the suitability phase of the process were received during the comment period for the DEIS. After review and consideration of these comments, the BLM is making recommendations on suitable segments in this Plan/FEIS.

D. This Plan does not state that an instream flow or a Federal reserved water right would be established. The DEIS did state that Congress, or the Secretary of the Interior at the request of the State Governor, may designate a Wild and Scenic River within the Monument. Such a designation could reserve sufficient water to carry out the purposes of the designation, including instream flows, but would not displace any previously established private rights.

E. Unlike ACECs which the BLM can establish itself, WSR designations are made by Congress or by the Secretary of the Interior upon application of the State Governor. The BLM must complete its legal responsibilities required under the Wild and Scenic Rivers Act to allow others to make the ultimate decision.

WSR-4

COMMENT: A better explanation of how WSR tentative classifications were made should be provided.

RESPONSE: Classification for the eligibility phase of the WSR study was done using existing conditions and the level of developement along river segments. Classifications in the suitability phase considered the factors outlined in the BLM Manual Section 8351 and Wild and Scenic Rivers Act, but also considered management objectives outlined by the DEIS alternatives.

WSR-5

COMMENT: Willis Creek should be determined eligible and suitable to protect riparian areas.

RESPONSE: Willis Creek has several diversions above the Skutumpah Road and was determined not to be free-flowing. This does not preclude protection of the riparian values of Willis Creek. As discussed in the **Riparian** section in Chapter 2 of this Plan, riparian resources are important in the Monument and would be protected under the Proposed Plan provisions.

WSR-6

COMMENT: Why were eligible river segments not included in the DEIS Alternative B suitable segments?

RESPONSE: The suitability determination process, while guided by specific factors, is subjective and left to professional judgement. The BLM carefully considered all the relevant information, including input received during the eligibility phase of the study, and evaluated segments for suitability. Although comments were received stating that all or none of the eligible segments should be suitable, there was not enough accompanying documentation to convince the BLM to make changes. A more detailed discussion of the factors considered in the suitability evaluation is included in Appendix 11 of this Plan.

Cottonwood Canyon, Wolverine Creek, Little Death Hollow, Phipps Wash, Cottonwood Creek, parts of Harris Wash (parts that do not have known southwestern willow flycatchers), side canyons into The Gulch, Water Canyon, Blackwater Canyon, Lamanite Arch Canyon, Bull Valley Gorge, Dry Hollow Creek and the unnamed tributary west of Calf Creek were found non-suitable because the quality of river characteristics in these segments would not significantly enhance nor contribute to the National Wild and Scenic River System. Nevertheless, the outstandingly remarkable riparian, scenic, geologic, recreational, cultural, and habitat values identified for these rivers would be protected under this Plan.

Lower Horse Canyon, while eligible, was found non-suitable because of management conflicts (one of the suitability criteria identified in BLM Manual Section 8351). An existing water diversion in that segment of the river could be used in the future to remove livestock grazing from the riparian area, which would conflict with WSR status.

WSR-7

COMMENT: The BLM has added "when evaluated in the context of an entire region" to outstanding remarkable values. This has excluded many segments from eligibility. The BLM has insufficient information regarding the presence or absence of threatened and endangered species to determine eligibility.

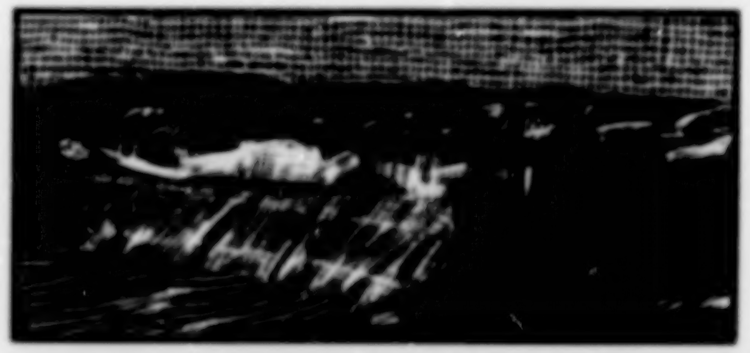
RESPONSE: BLM Manual 8351 states that the following must be considered in determining outstandingly remarkable values: scenic, recreational, geologic, fish, wildlife, cultural, historic, and other similar values. In addition, the manual also states that BLM State Directors may prescribe supplemental standards or criteria for determining outstandingly remarkable values. An interagency agreement signed in December of 1994 by the Utah State Director, and a Utah Interagency Memorandum of Understanding signed in January of 1998, dictates that "Resources should be at least regionally significant to be deemed outstandingly remarkable. To make this determination, a region should be explicitly delineated so that the significance of the rivers under review can be compared against others in the region. Selection of a region of an appropriate size and character is critical in arriving at a realistic determination of regionally significant rivers. To fine-tune the resource assessment, a set of comparative regions can be delineated according to the specific resources along the river(s) being evaluated."

The BLM is directed to consider WSR viability during the land management planning process. The BLM did so with the best data available to us at the time. Known threatened and endangered species sightings were a factor used to qualify a river segment as "eligible" in this process.

WSR-8

COMMENT: Explain the difference between Cottonwood Wash and Cottonwood Creek in the WSR planning process, and why Cottonwood Creek along the Cottonwood Road was not eligible in the DEIS.

RESPONSE: Cottonwood Wash (page 4.9 of the DEIS) is located east of Highway 12 along the Hogback. Cottonwood Creek, located along Cottonwood Road, was determined not to be free flowing on the upper end and not significant in the region of comparison and thus was not considered eligible.



Appendix I

Presidential Proclamation

BEST COPY AVAILABLE

Establishment of the Grand Staircase-Escalante National Monument by the President of the United States of America

September 18, 1996

A PROCLAMATION

The Grand Staircase-Escalante National Monument's vast and austere landscape embraces a spectacular array of scientific and historic resources. This high, rugged, and remote region, where bold plateaus and multi-hued cliffs run for distances that defy human perspective, was the last place in the continental United States to be mapped. Even today, this unspoiled natural area remains a frontier, a quality that greatly enhances the monument's value for scientific study. The monument has a long and dignified human history: it is a place where one can see how nature shapes human endeavors in the American West, where distance and aridity have been pitted against our dreams and courage. The monument presents exemplary opportunities for geologists, paleontologists, archeologists, historians, and biologists.

The monument is a geologic treasure of clearly exposed stratigraphy and structures. The sedimentary rock layers are relatively undeformed and unobscured by vegetation, offering a clear view to understanding the processes of the earth's formation. A wide variety of formations, some in brilliant colors, have been exposed by millennia of erosion. The monument contains significant portions of a vast geologic stairway, named the Grand Staircase by pioneering geologist Clarence Dutton, which rises 5,500 feet to the rim of Bryce Canyon in an unbroken sequence of great cliffs and plateaus. The monument includes the rugged canyon country of the upper Paria Canyon system, major components of the White and Vermilion Cliffs and associated benches, and the Kaiparowits Plateau. That Plateau encompasses about 1,600 square miles of sedimentary rock and consists of successive south-to-north ascending plateaus or benches, deeply cut by steep-walled canyons. Naturally burning coal seams have scorched the tops of the Burning Hills brick-red. Another prominent geological feature of the plateau is the East Kaibab Monocline, known as the Cockscomb. The monument also includes the spectacular Circle Cliffs and part of the Waterpocket Fold, the inclusion of which completes the protection of this geologic feature began with the establishment of Capitol Reef National Monument in 1938 (Proclamation No. 2246, 50 Stat. 1856). The monument holds many arches and natural bridges, including the 130-foot-high Escalante Natural Bridge, with a 100 foot span, and Grosvenor Arch, a rare "double arch." The upper Escalante Canyons, in the northeastern reaches of the monument, are distinctive: in addition to several major arches and natural bridges, vivid geological features are laid bare in narrow, serpentine canyons, where erosion has exposed sandstone and shale deposits in shades of red, maroon, chocolate, tan, gray, and white. Such diverse objects make the monument outstanding for purposes of geologic study.

The monument includes world class paleontological sites. The Circle Cliffs reveal remarkable specimens of petrified wood, such as large unbroken logs exceeding 30 feet in length. The thickness, continuity and broad temporal distribution of the Kaiparowits Plateau's stratigraphy provide significant opportunities to study the paleontology of the late Cretaceous Era. Extremely significant fossils, including marine and brackish water mollusks, turtles, crocodilians, lizards, dinosaurs, fishes, and mammals, have been recovered from the Dakota, Tropic Shale and Wahweap Formations, and the Tibbet Canyon, Smoky Hollow and John Henry members of the Straight Cliffs Formation. Within the monument, these formations have produced the only evidence in our hemisphere of terrestrial vertebrate fauna, including mammals, of the Cenomanian-Santonian ages. This sequence of rocks, including the overlaying Wahweap and Kaiparowits formations, contains one of the best and most continuous records of Late Cretaceous terrestrial life in the world.

Archeological inventories carried out to date show extensive use of places within the monument by ancient Native American cultures. The area was a contact point for the Anasazi and Fremont cultures, and the evidence of this mingling provides a significant opportunity for archeological study. The cultural resources discovered so far in the monument are outstanding in their variety of cultural affiliation, type and distribution. Hundreds of recorded sites include rock art panels, occupation sites, campsites and granaries. Many more undocumented sites that exist within the monument are of significant scientific and historic value worthy of preservation for future study.

The monument is rich in human history. In addition to occupations by the Anasazi and Fremont cultures, the area has been used by modern tribal groups, including the Southern Paiute and Navajo. John Wesley Powell's expedition did initial mapping and scientific field work in the area in 1872. Early Mormon pioneers left many historic objects, including trails, inscriptions, ghost towns such as the Old Paria townsite, rock houses, and cowboy line camps, and built and traversed the renowned Hole-in-the-Rock Trail as part of their epic colonization efforts. Sixty miles of the Trail lie within the monument, as does Dance Hall Rock, used by intrepid Mormon pioneers and now a National Historic Site.

Spanning five life zones from low-lying desert to coniferous forest, with scarce and scattered water sources, the monument is an outstanding biological resource. Remoteness, limited travel corridors and low visitation have all helped to preserve intact the monument's important ecological values. The blending of warm and cold desert floras, along with the high number of endemic species, place this area in the heart of perhaps the richest floristic region in the Intermountain West. It contains an abundance of unique, isolated communities such as hanging gardens, tinajas, and rock crevice, canyon bottom, and dunal pocket communities, which have provided refugia for many ancient plant species for millennia. Geologic uplift with minimal deformation and subsequent downcutting by streams have exposed large expanses of a variety of geologic strata, each with unique physical and chemical characteristics. These strata are the parent material for a spectacular array of unusual and diverse soils that support many different vegetative communities and numerous types of endemic plants and their pollinators. This presents an extraordinary opportunity to study plant speciation and community dynamics independent of climatic variables. The monument contains an extraordinary number of areas of relict vegetation, many of which have existed since the Pleistocene, where natural processes continue unaltered by man. These include relict grasslands, of which No Mans Mesa is an outstanding example, and pinon-juniper communities containing trees up to 1,400 years old. As witnesses to the past, these relict areas establish a baseline against which to measure changes in community dynamics and biogeochemical cycles in areas impacted by human activity. Most of the ecological communities contained in the monument have low resistance to, and slow recovery from, disturbance. Fragile cryptobiotic crusts, themselves of significant biological interest, play a critical role throughout the monument, stabilizing the highly erodible desert soils and providing nutrients to plants. An abundance of packrat middens provides insight into the vegetation and climate of the past 25,000 years and furnishes context for studies of evolution and climate change. The wildlife of the monument is characterized by a diversity of species. The monument varies greatly in elevation and topography and is in a climatic zone where northern and southern habitat species intermingle. Mountain lion, bear, and desert bighorn sheep roam the monument. Over 200 species of birds, including bald eagles and peregrine falcons, are found within the area. Wildlife, including neotropical birds, concentrate around the Paria and Escalante Rivers and other riparian corridors within the monument.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431) authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Grand Staircase-Escalante National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the document entitled "Grand Staircase-Escalante National Monument" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 1.7 million acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from entry, location, selection, sale, leasing, or other disposition under the public land laws, other than by exchange that furthers the protective purposes of the monument. Lands and interests in lands not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to diminish the responsibility and authority of the State of Utah for management of fish and wildlife, including regulation of hunting and fishing, on Federal lands within the monument.

Nothing in this proclamation shall be deemed to affect existing permits or leases for, or levels of, livestock grazing on Federal lands within the monument; existing grazing uses shall continue to be governed by applicable laws and regulations other than this proclamation.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

The Secretary of the Interior shall manage the monument through the Bureau of Land Management, pursuant to applicable legal authorities, to implement the purposes of this proclamation. The Secretary of the Interior shall prepare, within 3 years of this date, a management plan for this monument, and shall promulgate such regulations for its management as he deems appropriate. This proclamation does not reserve water as a matter of Federal law. I direct the Secretary to address in the management plan the extent to which water is necessary for the proper care and management of the objects of this monument and the extent to which further action may be necessary pursuant to Federal or State law to assure the availability of water.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this eighteenth day of September, in the year of our Lord nineteen hundred and ninety-six, and of the Independence of the United States of America the two hundred and twenty-first.

William J. Clinton

BLANK PAGE

Appendix 2

Antiquities Act of 1906

BEST COPY AVAILABLE

Act of June 18, 1906, 16 U.S.C. 431-433 (Popularly known as the Antiquities Act of 1906)

The following is the text of the Antiquities Act of 1906, under the authority of which President Clinton established Grand Staircase-Escalante National Monument.

16 U.S.C. § 431
National monuments: reservation of lands; relinquishment of private claims:

The President of the United States is authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected. When such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

16 U.S.C. § 431a
Limitation on further extension or establishment of national monuments in Wyoming:

No further extension or establishment of national monuments in Wyoming may be undertaken except by express authorization of Congress.

Appendix 3

Implementation and Adaptive Management

INTRODUCTION

This appendix addresses the implementation of decisions that would be approved in the Record of Decision. Processes for implementation, monitoring, and adaptive management are included. This appendix is not intended to be a plan, but rather a framework to guide implementation of planning decisions. New objectives or standards are not proposed here, but an implementation process is described which would increase the likelihood of meeting management direction and objectives described in the Proposed Plan. This is the start of this process and is intended to provide insight into expected implementation actions. It is anticipated that further refinements of this process would be necessary as implementation proceeds. This appendix is composed of four main sections:

- Time Frames for Implementation
- Consultation, Coordination, and Collaboration
- Linking Broad-scale Decisions and Information to Finer Levels: Subsequent Analysis and Decision making
- Framework for Monitoring, Evaluation, and Adaptive Management.

TIME FRAMES FOR IMPLEMENTATION

Implementation of decisions made through this planning process would occur in several phases. Although the use of the word "phase" implies sequential steps, some of the phases would be implemented concurrently to reduce the time involved in making the transition from current operations to Plan decisions and directions. The various phases involved in implementation include:

- *Pending/Ongoing Actions*: Generally, any ongoing, short-term activity would not be changed as a result of new direction. Short-term activities where National Environmental Policy Act (NEPA) analysis has been completed and decisions are pending would be screened to ensure there are no conflicts with the decisions in the Approved Plan/Record of Decision. Existing, longer-term permitted activities would be brought into compliance with the decisions as described below under *Longer-Term Actions*.

- *Immediate Actions*: Actions where implementation would begin in the immediate future (i.e., within the first year) are included in this category. These include actions such as implementing off-road vehicle closures, designating primitive camping areas, initiating a public information program, establishing criteria for new outfitters and guides, and other immediate actions to implement specific decisions in the Plan. The subsequent assessment and activity planning processes described below would also need to be developed and refined in the immediate term, including setting geographic priorities for subsequent analysis and planning. The monitoring and adaptive management process would also need to be initiated, including establishing coordination efforts and priorities for monitoring and research programs.

- *Longer-Term Actions*: This phase includes actions which are needed to implement decisions over the planning horizon (between 1-15 years). In addition to ongoing regulatory requirements, the major part of this effort would include subsequent ecosystem analysis and integrated activity planning on a finer-scale. This step-down (or hierarchical) process is designed to ensure that actions prescribed to meet broad-scale goals and objectives in this Plan consider local conditions and vice versa. The subsequent planning involved in this process would address existing, long-term permitted activities that need to be brought into compliance with plan decisions, subject to valid existing rights. The actual time frames for compliance would need to be outlined and prioritized during the *Immediate Actions* time-frame above. In addition, the monitoring and adaptive management strategy would be implemented over this longer-term phase, which may lead to changes in the Plan through an amendment or revision process that considers information specific to finer-scale conditions. This process is discussed in more detail in the sections below (**Linking Broad-scale Decisions and Information to Finer Levels** and **Framework for Monitoring, Evaluation and Adaptive Management**).

CONSULTATION, COORDINATION, AND COLLABORATION

This Proposed Plan/Final Environmental Impact Statement (FEIS) has been prepared with close coordination and collaboration with other Federal agencies; state, local and tribal governments; and other interested parties. Collaborative approaches to implementation would be necessary to assure success. While the Bureau of Land Management (BLM) retains the responsibility and authority for land management decisions, these decisions would be more meaningful, effective, and longer lasting if done in a collaborative and open process. Therefore, close working relationships between management and regulatory agencies would need to be developed and maintained. In addition, others outside of the BLM (e.g., state and local agencies, universities, volunteers) should be involved in subsequent analysis, monitoring, evaluation, research, and adaptive management processes.

Efforts to involve other agencies and the public in subsequent analysis, monitoring, research and adaptive management are included in the sections that follow and in the **Collaborative Management** section in Chapter 4 of this Plan. These efforts include intergovernmental participation through the GSENM Advisory Committee (see Chapter 2 for full discussion) which would make recommendations on strategies to meet management objectives. It also includes forming partnerships in efforts to complete assessments, establish baseline data, monitor, and modify management actions as a result of these processes.

LINKING BROAD-SCALE DECISIONS AND INFORMATION TO FINER LEVELS: SUBSEQUENT ANALYSIS AND DECISION MAKING

This Plan/FEIS contains general direction and context for the entire Monument and makes decisions on specific actions for some issues (e.g., access restrictions). Still, many management actions necessary to achieve broad-scale objectives (e.g., achieving a natural range of native vegetation associations) may require further analysis and additional decisions. This additional analysis would:

- Validate, refine, or add-to information concerning current and historical resource conditions;
- Address issues not appropriately addressed at the broad scale;
- Prioritize restoration efforts to maximize the likelihood of meeting management goals and objectives;
- Guide the type, location, and sequence of appropriate management activities;
- Identify monitoring and research needs.

This section provides an outline of the expected types and levels of analysis and planning that would "step-down" broad-scale information and decisions in the Plan to site-specific actions. This step-down process is designed to ensure that broad-scale decisions are viewed within the context of site-specific conditions, and that site-specific decisions are made within the context of broad-scale goals and objectives.

Hierarchy of Analysis

Several steps are envisioned to implement the broad-level decisions made in this Plan. While these steps may occur sequentially, it is likely that they would occur simultaneously since the need for further assessment before project implementation varies in different areas. Many actions can take place immediately (as described in **Time Frames for Implementation**), while others would be considered and scheduled through subsequent assessments and planning efforts. The process envisioned includes the following steps:

- *Monument-Wide Review*: The first step toward linking decisions to finer scales is to review existing information for the Monument to help set the context and priorities for subsequent analysis and decision making. The broad overview of existing information would help identify appropriate subunits (e.g., physiographic provinces or watersheds) and establish priorities for "taking closer looks" within them. Priorities would be based on a combination of ecological priorities (i.e., considering biophysical and socio-economic resource conditions, risks to key resources, and opportunities to protect areas with, or restore them to, properly functioning condition) and collaborative priorities (i.e., existing deadlines, court mandated actions, collaborator availability to participate in subsequent analyses or actions).

- *Sub-unit Ecosystem Assessments*: The review discussed above should identify priority areas where finer-scale assessments are considered necessary for scheduling and designing activities to achieve overall plan objectives. Such assessments would develop a "place based" analysis that provides context for site-scale planning and actions to implement decisions (see *Subsequent Planning* below). Assessments would focus on interpreting existing information and trends and identifying information gaps. Such analysis would also help refine overall objectives or desired future conditions to the specific conditions in the sub-unit and would characterize the situation and trends in relation to the desired future condition. If the situation or trend is negative, the assessment would set the stage for identifying the management necessary to move towards desired future conditions. The *Subsequent Planning* processes described below would be significantly enhanced by the context provided in these assessments.

- *Subsequent Planning*: Based on the broad-scale objectives in the Plan, and in some cases the assessments discussed above, finer-scale planning may need to be completed in order to implement decisions. Such planning could come in the form of Landscape Plans, Activity Plans and/or Project-level Plans.

Where the sub-unit ecosystem assessments indicate a need (e.g., an assemblage of issues throughout the sub-unit that could be most efficiently resolved at this scale), landscape-level planning (i.e., integrated activity plans corresponding to the sub-unit assessments) may be done. The purpose of operational planning at the landscape (e.g., watershed, physiographic province, or other ecosystem unit) level is to determine the mix of activities and projects needed to resolve local issues while meeting the broad-scale objectives in this Plan. This planning level is important in these situations because it provides for the development of projects and activities for different programs in conjunction with one another, allowing more effective consideration of cumulative effects. For example, planning for recreation, restoration, and grazing (i.e., incorporating allotment management plans into the integrated activity plans) can be done for a sub-unit to implement integrated decisions and projects. Planning at this level can be a key component of the adaptive management process (described below), because it would incorporate new information as applied across the Monument and could be modified as monitoring and evaluation suggest changes.

Where planning at the broader sub-unit level is not feasible or necessary, activity plans (i.e., planning specific to a particular resource program, such as a Fee Management Plan or a Special Recreation Management Plan) and site-specific project planning would also be used to implement decisions. Under the hierarchy of analysis and planning outlined above, the site-specific scale of analysis acts as a safety net for those issues overlooked or appropriately excluded at broader scales, and provides site-specific information for determining effects. This level of analysis has been used extensively since the inception of NEPA, and has been proven successful at identifying and addressing local issues and concerns. However, as a stand-alone assessment process, it has often been ineffective at addressing broad-scale issues. The site-specific analysis process would be significantly enhanced where content from broader scales (e.g., watershed or other ecosystem unit) of analysis can be brought to bear for cumulative effects.

Compliance with the National Environmental Policy Act

The FEIS for the Monument Plan provides the compliance with NEPA for the broad-scale decisions that would be made in the Record of Decision. It does not replace the requirement to comply with NEPA for implementation actions. The BLM would continue to prepare Environmental Assessments (EAs) and Environmental Impact Statements (EISs) where appropriate as part of the planning and decision making processes described above.

FRAMEWORK FOR MONITORING, EVALUATION, AND ADAPTIVE MANAGEMENT

Adaptive management, as defined here, is a formal process for continually improving management policies and practices by learning from the outcomes of operational programs and new scientific information. Under adaptive management, plans and activities are treated as working hypotheses rather than final solutions to complex problems. This approach builds on common sense, experimentation, and learning from experience, which is then used to modify implementation of plans. The process generally includes four phases: planning, implementation, monitoring, and evaluation (see Figure A3.1). The planning and implementation phases are discussed above. This section focuses on monitoring and evaluation, which would lead to changes in planning and implementation activities.

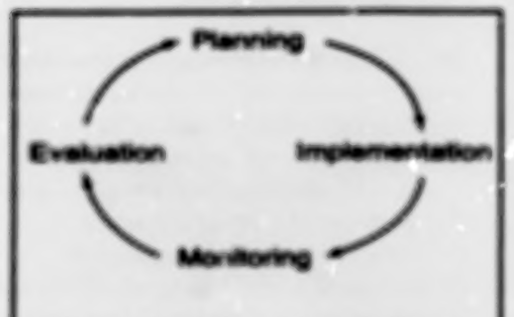


Figure A3.1 Adaptive Management Process

This section provides a framework to develop a specific monitoring and evaluation program which would measure the conditions and trends in the Monument. The information developed through the monitoring process would be used to assess management strategies, alter decisions, change implementation, or maintain current management direction.

Monitoring

An initial step in developing a monitoring strategy is to define the questions which need to be answered in order to evaluate the attainment of broad-scale management goals and objectives in the Plan. These questions can be used to focus the monitoring strategy on appropriate issues and avoid gathering information which has limited value in answering pertinent questions. The questions would also be used to help design a systems that can be implemented within agency budgets.

Technical and scientific staffs, in consultation with managers, need to play a key role in designing a monitoring strategy. The first step would be to select key monitoring elements and indicators that can be statistically sampled and can provide desired data at a reasonable cost. A standard core set of data elements would be collected. Core data, including data necessary to evaluate achievement of Utah's Standards and Guides for Rangeland Health, are the minimum set of variables to be collected at all scales. Standardized measurement and reporting protocols would be determined because of the essential need for consistency. Where possible, monitoring protocols would be designed to integrate existing monitoring efforts, and would address multiple questions. Also, the design would allow flexibility to add data elements in order to answer new questions/objectives raised in subsequent sub-unit or site-specific planning.

Determining the specific monitoring approach for any question depends on knowledge of detailed information on existing conditions. For example, trend assessment requires first gathering baseline or status information. Projects for collection of baseline information are being conducted in the Monument currently. Landscape scale vegetation assessments, overviews for paleontology, history and archaeology, Monument-wide surveys for special status species, collection of meteorological data at weather stations, and visitor use inventories are just a few of the multi-year projects that have occurred or are continuing. Data from these projects are integral to monitoring trends. A monitoring strategy must also identify other techniques (remote sensing, sample-based studies, modeling) that may be necessary to get a complete picture of structure and pattern of Monument resources. Successful implementation of large-scale monitoring may require a combination of approaches.

As mentioned above, the design of the monitoring program would allow flexibility to add data collection needs identified through the ecosystem assessments and planning processes.

Ecosystem assessments and planning, however, should also incorporate monitoring and evaluation information to ensure that the latest information is used in management actions.

Evaluation

Evaluation is the next key component of the adaptive management process. Evaluation is the process in which the plan and monitoring data are reviewed to see if management goals and objectives are being met and if management direction is sound. This portion of the adaptive management strategy examines the monitoring data and uses it to draw conclusions on whether management actions are meeting stated goals and objectives and, if not, why. The conclusions are used to make recommendations on whether to continue current management strategies or to make changes in management practices to meet Plan goals and objectives.

An evaluation schedule needs to be set in advance to ensure that: evaluations are conducted at intervals that allow for corrections in management direction before crises develop; monitoring data is gathered in advance to be used in the evaluation process; and the appropriate evaluation team is assembled to conduct the evaluation. Management evaluations made too frequently would not detect changes in ecosystems because cost-effective monitoring systems cannot detect changes at this scale. On the other hand, if ecosystem management evaluations are not conducted, or are delayed for too long, irreversible changes may take place without detection. To avoid this problem, two periodic management evaluations are proposed. The first is a bi-annual implementation evaluation comparing expected outcomes of projects to actual results and to ensure that monitoring results are incorporated into ongoing assessments and planning. The second is an evaluation conducted approximately every five to ten years comparing the overall rate and degree of movement towards broad-scale objectives and desired future conditions. These evaluation steps would be carried out by the Monument Science Team, in consultation with the GSENM Advisory Committee (discussed below).

Adaptive Management

The evaluation process discussed above would generate new information that needs to be incorporated into management actions. Ongoing sub-unit assessments and integrated activity planning would also uncover new information that can be used to make changes to projects, strategies, objectives, and monitoring elements. New information may result in any of the following:

- Concluding that management actions are moving the landscape towards the broad-scale objectives in the Plan. In this case, management actions are affirmed and may not need to be adjusted.
- Concluding that further research needs to be initiated or that actions must be adjusted to more efficiently achieve broad-scale objectives of the Plan. If new information or research demonstrates better ways to achieve plan objectives, changes in activity planning and project implementation can be made (i.e., plan maintenance). NEPA analysis may be required depending upon the nature of the management changes.
- Concluding that broad-scale objectives should be altered based on new information. If the new information indicates reconsideration of Plan objectives, a plan amendment could be considered to reexamine targeted future conditions and pathways to reach those conditions.

Role of the Management Science Team and the GSENM Advisory Committee

The Management Science Team (comprised of the Assistant Monument Managers for Biological Sciences, Cultural and Earth Sciences, and Visitor Services) would be responsible for developing monitoring and adaptive management protocols and ensuring that documentation is sufficient to facilitate feedback into the adaptive management process. This team would also be responsible for ensuring that monitoring results and other new information (based on sub-unit assessments) are compiled and evaluated according to the two evaluation phases discussed above.

The credibility of an adaptive management process rests in part on the routine application of an outside check on the use of technical and scientific information, including monitoring.

Independent reviews can provide verification that plans, evaluation and changes in management strategy are consistent with current scientific concepts. The GSENM Advisory Committee discussed in Chapter 2 of this Plan would be used in this role to evaluate compiled monitoring data in the evaluation phases discussed above, and would make recommendations to management regarding changes to projects, strategies or objectives. The majority of the committee members would be scientists, reflecting the Advisory Committee's science focus. There would be eight scientists representing the areas of archaeology, paleontology, geology, botany, wildlife biology, history, social science, and systems ecology. In addition, there would be seven members representing other agencies, local communities, interest groups, and users of the Monument.

BEST COPY AVAILABLE

Appendix 4

Standard Procedures

BEST COPY AVAILABLE

344

INTRODUCTION

This appendix is a compilation of the standard procedures for mitigating surface disturbing activities that have been described throughout this Plan. It is designed to provide an understanding of how proposed mitigation in this Plan would apply to specific projects or proposals. These standards are not intended to describe the criteria used to determine whether projects would be approved. Instead, they discuss standard procedures for locating, designing, and stipulating projects where they could be allowed. These standards are general in nature, and do not necessarily cover all concerns or issues that may need to be addressed in specific National Environmental Policy Act (NEPA) documents. Site-specific stipulations would be developed as part of the permitting process for any project authorization or land use/restoration activity.

PROJECT-LEVEL NEPA DOCUMENTATION AND INVENTORIES

All proposed surface disturbing activities will be evaluated using NEPA and associated Bureau of Land Management/Monument Management guidance. This process requires that the project site be surveyed for potential impacts to resources (discussed below) and that an interdisciplinary approach be used to analyze and document such impacts. Monument staff with primary NEPA compliance responsibilities will review the project with managers, and document NEPA compliance prior to initiating or approving any surface disturbance.

The Monument Plan calls for an on-going inventory, assessment, and monitoring process which would continue to identify and document the presence of sensitive resources. The results of these processes would be employed during project-level NEPA documentation.

MAJOR RESOURCES OF CONCERN

This section includes a listing of major resources within the Monument that should be given careful attention through a site inventory at any proposed project or activity site. Site inventories would be conducted by qualified resource specialists for each resource. If such resources are found at a site, actions would be taken as described below for each resource. Additional actions to protect resources could be identified through the NEPA process.

Geology: If geologic hazards or sensitive geomorphologic features (e.g., arches, natural bridges) are identified during site inventories, the project would be moved or modified to prevent conflicts or damage.

Paleontology: Areas found to have unique paleontological resources would be avoided. In other cases where ubiquitous fossils are present, samples may be taken to record their presence and the proposed activity may be allowed. Measures would be taken to minimize impacts on the remaining paleontological resources.

Cultural (Archaeological and Historic) resources: In the event that archaeologic or historic artifacts are identified during site inventories, the location of the proposed project would be moved to avoid impacts. Where avoidance is not possible, other measures to protect the sensitive resource (e.g., construction of barriers, interpretation) would be used. Efforts to excavate and curate the resource could be taken as a last resort. Consultation with appropriate Native American Indian communities, and/or the State Historic Preservation Officer will be required. Consultation with local communities will also be a priority.

Riparian: Specific restrictions on projects in riparian areas include:

- New recreation facilities would be prohibited in riparian areas, except for small signs for resource protection.
- Trails would be kept out of riparian areas wherever possible. Where this is not possible, or where a trail is necessary to prevent the proliferation of social trails, trails would be designed to minimize impacts by placing them away from streams, using soil stabilization structures to prevent erosion, and planting native plants in areas where vegetation has been removed.
- All other projects would need to avoid riparian areas wherever possible.
- Vegetation restoration treatments would not be allowed in these areas, unless needed for removal of noxious weed species or restoration of disturbed sites.

Soils (including biological soil crusts): If sensitive soil resources are identified, project locations or design would be modified to minimize impacts to sensitive soil crusts.

Fish and Wildlife: If sensitive wildlife or wildlife habitat is identified, the location of the proposed project may be moved or the project modified to reduce impacts. Seasonal closures or restrictions may be required. Non-electrocution standards for raptors on all new and reconstructed powerlines would be required. Standards for protection of special status species (discussed below) would be required.

Vegetation (including hanging gardens and relict plant communities): If sensitive vegetation is identified, sites may be moved to avoid impacts, or project design modified to reduce impacts. Standards for protection of special status plant species (discussed below) would be required. Specific restrictions on projects include:

- No facilities and surface disturbance would be allowed in hanging garden or relict plant areas.
- No vegetation restoration methods would be allowed in hanging gardens or relict plant areas unless needed for noxious weed removal.
- Use of certain types of machinery is prohibited in the Primitive Zone as described in the Vegetation Restoration Methods section of Chapter 2.
- Chaining and pushing would only be allowed in limited circumstances after wildfires (not for management ignited fires) as described in the **Vegetation Restoration Methods** section of Chapter 2.

Special Status Animal and Plant Species: In cases where special status species may be affected by a project, the project would be relocated or modified to avoid species or their habitat in consultation with the United States Fish and Wildlife Service (USFWS). Specific restrictions include:

- Surface disturbing projects or activities (such as designated fuelwood cutting areas) would not be allowed in identified special status plant populations.
- Surface disturbing research would generally not be allowed in special status species habitat, except where deemed appropriate in consultation with the USFWS.
- Surface disturbing projecca or activities would not be allowed within ½ mile of Mexican spotted owl nests or within 1 mile of peregrine falcon nests unless USFWS consultation shows no impacts would occur.
- Surface disturbing projects or activities would not be allowed in areas of known bald eagle roost sites unless consultation with the USFWS shows no impacts would occur.
- No designated climbing areas would be allowed within known sensitive species nesting areas.
- Use of chemical substances that may affect the Colorado pikeminnow or the razorback sucker downstream may not be used.

Water Resources: Impacts to water resources would need to be assessed for all projects. Specific restrictions include:

- Water developments could only be used when beneficial to Monument resources.
- Water developements could not jeopardize or de-water springs or streams.
- Water could not be diverted out of the Monument (exceptions could be made for local community culinary needs if the applicant demonstrates no effect on Monument resources).
- Water quality protection measures would be required for all projects, including subsequent monitoring.

Air Quality: All specific proposals would be reviewed for compliance with existing laws and policies regarding air quality and would be designed not to degrade existing quality. Specific procedures include:

- Coordinating with the Utah Department of Environmental Quality if an emission permit is required.
- Management ignited fires must comply with the State of Utah Interagency Memorandum of Understanding requirements to minimize air quality impacts from resulting particulates. This procedure requires obtaining an open burning permit from the State prior to conducting a management ignited fire.

OTHER CONSIDERATIONS

Commercial Filming: Permits for commercial filming must meet "minimum impact" standards listed in the **Commercial Filming** section of Chapter 2.

Floodplains: No projects or activities resulting in permanent fills or diversions would be allowed in Federal Emergency Management Agency designated special flood hazard areas.

Monument Facilities Master Plan: All projects, facilities, and signs must be consistent with the Monument Interpretive Plan, the Monument Facilities Master Plan, and the Monument Architectural and Landscape Theme (all in the process of development). The Monument Facilities Master Plan would address compliance with the Americans with Disabilities Act of 1973, the Rehabilitation Act of 1973, and the Architectural Barriers Act of 1968.

Native Plant Policy: Native plants would be used as a priority for all projects in the Monument. There are limited, emergency situations where it may be necessary to use non-native plants in order to protect Monument resources (i.e., to stabilize soils and displace noxious weeds). This use could be allowed in the following circumstances:

- The use complies with vegetation objectives, Executive Order 11312, and the Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah.
- Short-lived species (i.e., nurse crop species) used in combination with native species to facilitate the ultimate establishment of native species
- Non-natives would not be used to increase forage for livestock or wildlife.
- Monitoring plots must be established to document changes in vegetation structure and composition.

Reseeding After Fires: Each fire would be evaluated on a case-by-case basis to determine the appropriate actions to meet the established vegetation management objectives, including the following considerations:

- Areas that had little diversity and little potential for noxious weed invasions would be seeded exclusively with native species.
- Areas of low diversity and high potential for noxious weed invasion would most likely be seeded, and non-native/native seed mixes could be used if consistent with the non-native plant policy.
- The use of aircraft in reseeding operations could be allowed in areas as appropriate (timing would be evaluated to eliminate conflicts with raptor species).

Restoration/Revegetation: Each project and area must be evaluated to determine appropriate restoration or revegetation strategies. General guidelines include:

- Restoration would be the goal wherever possible.
- Species used in both restoration and revegetation must comply with the non-native plant policy described above.
- Revegetation strategies would be used in areas of heavy visitation, where site stabilization is desired.
- Restoration/revegetation provisions would be included in all surface disturbing projects including provisions for post restoration monitoring of the area. Costs for these activities would be included in the overall cost of the project.
- Priority for restoration and revegetation would be given to projects where Monument resources are being affected.

Rights-of-Way: The following criteria apply to the management of all rights-of way in the Monument where they are allowed:

- All new and reconstructed utility lines (including powerlines up to 34.5 kilovolts) would be buried unless: visual quality objectives can be met without burying; geologic conditions make burying infeasible; or burying would produce greater long-term site disturbance.
- All reconstructed and future powerlines must meet non-electrocution standards for raptors. If problems with existing powerlines occur, corrective measures would be taken.
- All new powerlines would be constructed using non-reflective wire. Steel towers would be constructed using galvanized steel. Powerlines would not be high-lined unless no other location exists.
- Strobe lights would not be allowed at any communication site. Other methods would be used to meet aircraft safety requirements.
- Communication site plans would be prepared for all existing sites before any new uses or changes in use occur.
- A Monument-wide feasibility study would be prepared to determine the most

appropriate location(s) for new communication sites.
- Only one access route to private land parcels would be authorized unless public safety or local ordinances warrant additional routes.
- Private land owners would be required to coordinate the development of access routes across public lands in order to prevent a proliferation of routes.

Route Maintenance: Most routes would be maintained within the existing disturbance, except as provided for in the **Transportation and Access** section of Chapter 2. Erosion control structures may be necessary during or after maintenance activities.

Visual Resources: All proposed actions must consider the importance of the visual values and must minimize the impacts the project may have on these values. All projects must be designed to be unobtrusive and follow these procedures:
- The visual resource contrast rating system would be used as a guide to analyze potential visual impacts of all proposed actions. Projects must be designed to mitigate impacts and conform to the assigned Visual Resource Management (VRM) class.
- Natural or natural appearing materials would be used as a priority
- Restoration and revegetation objectives must be met.
- The Monument manager may allow temporary projects, such as research projects, to exceed VRM standards if the project terminates within two years of initiation. Phased mitigation may be required during the project to better conform with prescribed VRM standards.
- Existing facilities would be brought into VRM class conformance to the extent practicable when the need or opportunity arises, such as during reconstruction.

Wild and Scenic Rivers: All proposed actions must be evaluated to determine potential impacts on outstandingly remarkable values for suitable river segments. Projects would be relocated or modified to avoid impacts to identified outstandingly remarkable values.

Wilderness Concerns (including Wilderness Study Areas (WSAs) and areas with Wilderness Character): Existing WSAs would be managed under the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review.

Areas that were found to have wilderness characteristics during the BLM's 1999 reinventory would not be managed as WSAs, unless designated as WSAs under the Section 202 Planning Process. In the meantime, the BLM would continue to give careful consideration before acting affirmatively on any proposals for activities within these areas. In NEPA processes, BLM would continue to evaluate the potential for harm to wilderness characteristics, and proposed actions may be modified or the "no action" alternative would be considered if actions were deemed to have the potential to negate the areas's eligibility for wilderness designation by Congress.

Weeds: Control of noxious weeds is a priority in order to achieve the overall vegetation management objectives. Implications for weed management must be considered in all projects. Specific considerations include:
- Chemical treatment methods, including aerial spraying (see below), would generally be restricted to control of noxious weed species. BLM employees or contractors with appropriate certification would be responsible for use of chemicals and would take precautions to prevent possible effects to non-target plant species. Use of such chemicals would not be allowed near special status plant populations.
- Biological control methods would be used only for the control of noxious or exotic weed species.
- Aerial chemical applications could only be used in limited circumstances where: accessibility is so restricted that no other alternative means is available; it can be demonstrated that non-target sensitive species or other Monument resources would not be detrimentally affected; and noxious weeds are presenting a significant threat to Monument resources.
- All hay used on BLM lands must be certified weed free.
- All machinery that has been used outside of the Monument must be cleaned prior to use within the Monument.
- All projects would contain restoration/revegetation protocols to minimize re-colonization of treated areas by noxious weed species.

BEST COPY AVAILABLE

Appendix 5

Standards & Guidelines for Healthy Rangelands

BEST COPY AVAILABLE

INTRODUCTION

The following policies, practices, and procedures will be implemented in order to ensure that Bureau of Land Management (BLM) lands are healthy. The concept of healthy rangelands expresses the BLM's desire to maintain or improve productivity of plant, animal (including livestock), soil, and water resources at a level consistent with the ecosystem's capability.

In order to meet society's needs and expectations for *sustained* production and conservation of natural resources from BLM rangelands, use of these lands must be kept in balance with the land's ability to sustain those uses. Identifying that balance requires an understanding and application of ecological principles that determine how living and non-living components of rangelands interact. Recognition of the inter-dependence of soil, water, plants, and animals (including livestock) is basic to maintaining healthy rangelands and is the key element in BLM's proposed Standards and Guidelines.

The policies, practices, and procedures contained in this document are referred to as Standards and Guidelines. Standards and Guidelines will apply to all uses of BLM land for forage, including livestock, wildlife, wild horses, and burros.

Standards describe desired ecological conditions that the BLM intends to attain in managing BLM lands, whereas Guidelines define practices and procedures that will be applied to achieve Standards. While Standards will initially be applied to grazing, it is the BLM's intent to eventually apply these Standards to all rangeland uses that have the ability to affect or be affected by the ecological characteristics of rangelands.

FUNDAMENTALS OF RANGELAND HEALTH

The BLM has defined four Fundamentals of Rangeland Health, which are the basic ecological principles underlying sustainable production of rangeland resources. These Fundamentals are embodied in the BLM's new Grazing Regulations (43 CFR, Part 4100), which became effective in August of 1995. These four Fundamentals of Rangeland Health, which also serve as the basis for Standards and Guidelines for Grazing Management, are as follows:

1. Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian/wetland, and aquatic components; soil and plant conditions support water infiltration, soil moisture storage, and release of water that are in balance with climate and landform, and maintain or improve water quality, water quantity, and timing and duration of flow.
2. Ecological processes, including the hydrologic cycle, nutrient cycles, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.
3. Water quality complies with state water quality standards and achieves, or is making progress toward achieving, established BLM management objectives, such as meeting wildlife needs.
4. Habitats are, or are making significant progress towards being, restored or maintained for Federal threatened and endangered species, Federal proposed, Federal candidate, other special status species, native species, and for economically valuable game species and livestock.

By developing Standards and Guidelines based on the Fundamentals listed above, and by applying those Standards and Guidelines to BLM land management, it is the BLM's intent to achieve the following:

1. Promote healthy, sustainable rangeland ecosystems that produce a wide range of public values such as wildlife habitat, livestock forage, recreation opportunities, wild horse and burro habitat, clean water, clean air, etc.
2. Accelerate restoration and improvement of public rangelands to properly functioning condition, where appropriate.
3. Provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy rangelands.

BEST COPY AVAILABLE

4. Ensure that BLM land users and stakeholders have a meaningful voice in establishing policy and managing BLM rangelands.

STANDARDS AND GUIDELINES

Standards are descriptions of the desired condition of the biological and physical components and characteristics of rangelands. Standards:

- are measurable and attainable;
- comply with various Federal and state statutes, policies, and directives applicable to BLM rangelands; and
- establish goals for resource condition and parameters for management decisions.

Indicators are features of an ecosystem that can be measured or observed in order to gain an understanding of the relative condition of a particular landscape or portion of a landscape. Indicators will be used by the rangeland manager to determine if Standards are being met. The indicators proposed for use are commonly accepted and used by members of the rangeland management profession in monitoring rangelands. Methods and techniques for evaluating these indicators are also commonly available. In using these terms, it should be recognized that not every indicator applies equally to every acre of land or to every ecological site. Additional indicators not listed below may need to be developed for some rangelands depending upon local conditions.

Similarly, because of natural variability, extreme degradation, or unusual management objectives, discretion will be used in applying Standards. Judgements about whether a site is meeting or failing to meet a Standard must be tempered by a knowledge of the site's potential. Examples of this are thousands of acres of the Great Basin in western Utah where native perennial grass species' have been replaced by cheatgrass, an annual exotic species. It will be difficult and expensive to return all those areas to their natural potential because they have been greatly altered. It may not even be feasible to restore such areas from such an altered state to a state similar to "natural" conditions.

Site potential is determined by soil, geology, geomorphology, climate, and landform. Standards must be applied with an understanding of the potential of the particular site in question, as different sites have differing potentials.

Guidelines are management approaches, methods, and practices that are intended to achieve a Standard. Guidelines:

- typically identify and prescribe methods of influencing or controlling specific public land uses;
- are developed and applied consistent with the desired condition and within site capability; and
- may be adjusted over time.

It should be understood that these Standards and Guidelines are to be applied in making specific grazing management decisions. However, it should also be understood that they are considered the minimum conditions to be achieved. Flexibility must be used in applying these policy statements because ecosystem components vary from place to place and ecological interactions may be different.

Standards and Guidelines for use on BLM Land in Utah are described in the following pages. Standards and Guidelines, once approved by the Secretary of the Interior, will be implemented through subsequent Resource Management Plans (RMPs) and other decisions by BLM officials involving matters related to management of grazing. Where applicable, the statewide Guidelines may be adopted as terms and conditions for grazing permits and leases. Additional Guidelines may be identified and implemented through subsequent RMPs and activity plans to address local situations not dealt with by the statewide Guidelines.

STANDARDS FOR RANGELAND HEALTH

Standard 1. Upland soils exhibit permeability and infiltration rates that sustain or improve site productivity, considering the soil type, climate, and landform. This is indicated by:

a. Sufficient cover and litter to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation;

b. The absence of indicators of excessive erosion such as rills, soil pedestals, and actively eroding gullies; and

c. The appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community (DPC), where identified in a land use plan conforming to these Standards, or (2) where the DPC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological processes.

Standard 2. Riparian and wetland areas are in properly functioning condition. Stream channel morphology and functions are appropriate to soil type, climate and landform. This is indicated by:

a. Streambank vegetation consisting of, or showing a trend toward, species with root masses capable of withstanding high streamflow events, vegetative cover adequate to protect stream banks and dissipate streamflow energy associated with high-water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge;

b. Vegetation reflecting: DPC, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, large woody debris when site potential allows, and providing food, cover, and other habitat needs for dependent animal species;

c. Re-vegetating point bars, lateral stream movement associated with natural sinuosity, channel width, depth, pool frequency, and roughness appropriate to landscape position; and

d. Active floodplain.

Standard 3. Desired species, including native, threatened, endangered, and special-status species, are maintained at a level appropriate for the site and species involved. This is indicated by:

a. Frequency, diversity, density, age classes, and productivity of desired native species necessary to ensure reproductive capability and survival;

b. Habitats connected at a level to enhance species survival;

c. Native species re-occupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of non-native species;

d. Habitats for threatened, endangered, and special-status species managed to provide for recovery and move species toward de-listing; and

e. Appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the DPC,where identified in a land use plan conforming to these Standards, or (2) where the DPC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological processes.

Standard 4. The BLM will apply and comply with water quality standards established by the State of Utah (R.317-2) and the Federal Clean Water and Safe Drinking Water Acts. Activities on BLM lands will fully support the designated beneficial uses described in the Utah Water Quality Standards (R.317-2) for Surface and Groundwater. This is indicated by:

a. Measurement of nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and other water quality parameters; and

b. Macro invertebrate communities that indicate water quality meets aquatic objectives.

GUIDELINES FOR GRAZING MANAGEMENT

1. Grazing management practices will be implemented which:
    a. Maintain sufficient residual vegetation and litter on both upland and riparian

sites to protect the soil from wind and water erosion and support ecological functions;

b. Promote attainment or maintenance of proper functioning condition riparian/wetland areas, appropriate stream channel morphology, desired soil permeability and infiltration, and appropriate soil conditions and kinds and amounts of plants and animals to support the hydrologic cycle, nutrient cycle and energy flow;

c. Meet the physiological requirements of desired plants and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow;

d. Maintain viable and diverse populations of plants and animals appropriate for the site;

e. Provide or improve, within the limits of site potentials, habitat for threatened or endangered species;

f. Avoid grazing management conflicts with other species that have the potential of becoming protected or special status species;

g. Encourage innovation, experimentation and the ultimate development of alternatives to improve rangeland management practices; and

h. Give priority to rangeland improvement projects and land treatments that offer the best opportunity for achieving the Standards.

2. Any spring and seep developments will be designed and constructed to protect ecological process and functions and improve livestock, wild horse, and wildlife distribution.

3. New rangeland projects for grazing will be constructed in a manner consistent with the Standards. Considering economic circumstances and site limitations, existing rangeland projects and facilities that conflict with the achievement or maintenance of the Standards will be relocated and/or modified.

4. Livestock salt blocks and other nutritional supplements will be located away from riparian/wetland areas, other permanently located, or other natural water sources. It is recommended that the locations of these supplements be moved every year.

5. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-native plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) cannot achieve ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.

6. When rangeland manipulations are necessary, the best management practices, including biological processes, fire, and intensive grazing will be utilized prior to the use of chemical or mechanical manipulations.

7. When establishing grazing practices and rangeland improvements, the quality of the outdoor recreation experience is to be considered. Aesthetic and scenic values, water, campsites, and opportunities for solitude are among those considerations.

8. Feeding of hay and other harvested forage (which does not refer to miscellaneous salt, protein, and other supplements), for the purpose of substituting inadequate natural forage, will not be conducted on BLM lands other than in (a) emergency situations where no other resource exists and animal survival is in jeopardy, or (b) situations where the Authorized Officer determines such a practice will assist in meeting a Standard or attaining a management objective.

9. In order to eliminate, minimize, or limit the spread of noxious weeds, (a) only hay cubes, hay pellets, or certified weed-free hay will be fed on BLM lands, and (b) reasonable adjustments in grazing methods, methods of transport, and animal husbandry practices will be applied.

10. To avoid contamination of water sources and inadvertent damage to non-target species, aerial application of pesticides will not be allowed within 100 feet of a riparian/wetland area unless the product is registered for such use with the Environmental Protection Agency.

11. On rangelands where a Standard is not being met, and conditions are moving

toward meeting the Standard, grazing may be allowed to continue. On lands where a Standard is not being met, conditions are not improving toward meeting the Standard or other management objectives, and livestock grazing is deemed responsible, administrative action with regard to livestock will be taken by the Authorized Officer pursuant to CFR 4180.2(c).

12. Where it can be determined that more than one kind of grazing animal is responsible for failure to achieve a Standard, and adjustments in management are required, those adjustments will be made to each kind of animal, based on interagency cooperation as needed, in proportion to their degree of responsibility.
13. Rangelands that have been burned, reseeded, or otherwise treated to alter vegetative composition will be closed to livestock grazing as follows: (a) burned rangelands, whether by wildfire or prescribed burning, will be ungrazed for a minimum of one complete growing season following the burn; (b) rangelands that have been reseeded or otherwise chemically or mechanically treated will be ungrazed for a minimum of two complete growing seasons following treatment.
14. Conversions in kind of livestock (such as from sheep to cattle) will be analyzed in light of Rangeland Health Standards. Where such conversions are not adverse to achieving a Standard, or they are not in conflict with land BLM use plans, the conversion will be allowed.

MONITORING AND ASSESSMENT

The determination of whether or not a particular grazing unit, pasture or allotment is meeting a Standard will be made by the Authorized Officer based on rangeland assessments and monitoring.

Monitoring the indicators will be in the form of recorded data from study sites or transects. It may be supplemented by visual observations and other data by BLM or other agency personnel, ranchers, interested public, wildlife agency personnel, or other resource data. Assessments are the interpretation of data, observations, and related research findings. Assessments are the usual basis for prescribing grazing adjustments or practices. In some cases, such as with threatened or endangered species, Section 7 consultation with the U. S. Fish and Wildlife Service under the Endangered Species Act will occur. In all cases, conformance with Standards and Guidelines is a local decision based on local circumstances involving a collaborative process with affected interests

Should an assessment determine that an allotment is not meeting a Standard and/or significant progress toward meeting a Standard is not occurring, the next step is to determine the cause of failing to meet the Standard. If that determination reveals that grazing is involved or partially responsible, the Authorized Officer, with involvement of the interested parties, will prescribe actions that ensure progress toward meeting the Standard. Those actions may be a part of an activity plan, a coordinated management plan, or an administrative decision. Corrective management actions will be based on actual on-the-ground data and conditions.

(Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah, USDI, BLM, May 1997)

Appendix 6

Grazing Allotments

Table A6.1
Grazing Allotments

Allotment	Map Number[1]	Allotment Management Plan (AMP)	Grazing Period[2]	Active Preference (Number of animal unit months)	Allotment Category[3]
Alvey Wash	1	1990	05/15 through 09/23	1,276	I
Big Bowns Bench	2	1984	10/16 through 04/15	1,275	M
Big Horn	3	1983	11/10 through 06/15	4,392	I
Blackridge	4	No AMP	10/15 through 04/15	848	I
Black Rock	5	No AMP	Year-long	408	I
Boot	6	No AMP	08/01 through 10/31	45	C
Boulder Creek	7	No AMP	10/16 through 11/29	80	C
Bunting Well	8	1981	Year-long	3,307	M
Calf Pasture	9	1991	08/10 - 10/15 odd years	176	M
		1991	06/10 - 08/15 even years		
Cedar Wash	10	1984	06/15 through 10/31	898	M
Circle Cliffs	11	1996	11/01 through 03/31	1,050	I
Clark Bench	12	1982	08/01 through 04/30	1,200	I
Cockscomb	13	No AMP	03/01 through 05/31	36	C
Collet	14	No AMP	09/15 through 10/15	92	C
Cottonwood	15	1981	11/10 through 05/31	2,233	I
Coyote	15	1978	11/01 through 05/31	2,044	M
Death Hollow	17	No AMP	11/01 through 05/15	1,002	C
Deer Creek	18	No AMP	11/01 through 04/30	587	M
Deer Range	19	No AMP	08/01 through 10/15	213	M
Deer Spring Point	20	1988	06/10 through 10/07	503	I
Dry Valley	21	No AMP	07/01 through 10/31	531	M
First Point	22	1979	Summer Use	396	M
Five Mile Canyon	23	No AMP	11/01 through 04/30	385	C
Flood Canyon	24	1989	07/01 through 10/31	148	I
Fordwell	25	No AMP	06/10 through 10/09	291	C
Fortymile Ridge	26	1987	11/01through 06/15	4,155	I
Granary Ranch	27	No AMP	07/01 through 11/30	70	C
Haymaker Bench	28	No AMP	11/10 through 12/31	100	C
Headwaters	29	1982	11/01 through 03/15	3,607	M
Hells Bellows	30	No AMP	05/01 through 10/15	44	C

Table A6.1
Grazing Allotments

Allotment	Map Number,	Allotment Management Plan (AMP)	Grazing Period,	Active Preference (Number of animal unit months)	Allotment Category,
Johnson Canyon	31	No AMP	06/10 through 11/15	174	C
Johnson Lakes	32	1986	06/01 through 11/30	319	I
Johnson Point	33	No AMP	11/01 through 03/31	135	C
King Bench	34	1983	11/01 through 03/31	2,414	I
Lake	35	1989	09/01 through 05/01	1,308	I
Last Chance	36	1982	Year-long	3,708	I
Little Bowns Bench	37	No AMP	11/01 through 02/28	130	M
Little Desert	38	No AMP	09/24 through 10/08	107	C
Locke Ridge	39	1986	12/01 through 04/30	145	I
Lower Cattle	40	1967	10/01 through 04/15	6,873	I
Lower Hackberry	41	1981	11/01 through 03/31	435	I
McGath Point	42	No AMP	10/01 through 02/28	60	M
Meadow Canyon	43	1986	09/01 through 11/30	144	I
Mill Creek	44	No AMP	06/01 through 09/30	300	C
Mollie's Nipple	45	1976	Year-long	3,436	M
Moody	46	No AMP	11/01 through 03/31	1,600	C
Mud Springs	47	No AMP	07/15 through 10/15	195	M
Neaf	48	No AMP	03/01 through 11/30	9	C
Nipple Bench	49	1981	12/01 through 04/30	885	I
Phipps	50	No AMP	09/01 through 03/31	280	M
Pine Creek	51	No AMP	06/15 - 06/22, 10/01 - 10/7	78	C
Pine Point	52	1988	06/16 through 10/15	365	I
Rock Creek-Mudholes	53	1982	Year-long	2,100	M
Round Valley	54	1983	11/01 through 03/31	495	I
Roy Willis	55	No AMP	11/01 through 04/30	10	C
Rush Beds	56	1982	11/01 through 05/31	247	M
Salt Water Creek	57	No AMP	10/16 through 03/15	120	C
School Section	58	No AMP	06/01 through 07/31	2	C
Second Point	59	No AMP	07/01 through 03/31	21	C
Sink Holes	60	1982	10/15 through 03/31	154	I
Soda	61	No AMP	10/01 through 06/01	2,755	I

Table A6.1
Grazing Allotments

Allotment	Map Number,	Allotment Management Plan (AMP)	Grazing Period,	Active Preference (Number of animal unit months)	Allotment Category,
State Block	62	1984	03/01 through 02/28	60	C
Stony Creek	63	1969	05/15-06/16, 11/10-03/31	318	C
Swallow Park	64	1992	05/10 through 11/10	734	I
Timber Mountain	65	No AMP	06/15 through 10/15	375	M
Upper Cattle	66	1984	11/01 through 06/15	6,297	I
Upper Hackberry	67	1981	11/01 through 06/15	605	I
Upper Paria	68	1976	05/01 through 09/30	2,525	M
Upper Warm Creek	69	1981	11/01 through 05/31	1,477	I
Vermillion	70	1974	Year-long	2,556	M
Wagon Box Mesa	71	No AMP	11/01 through 03/31	633	C
Wahweap	72	No AMP	12/01 through 04/30	400	M
White Rocks	73	1981	12/01 through 01/31	60	C
White Sage	74	No AMP	05/06 through 06/05	75	C
Willow Gulch	75	1983	11/01 through 03/31	404	M
Wiregrass	76	No AMP	11/01 through 03/31	600	M

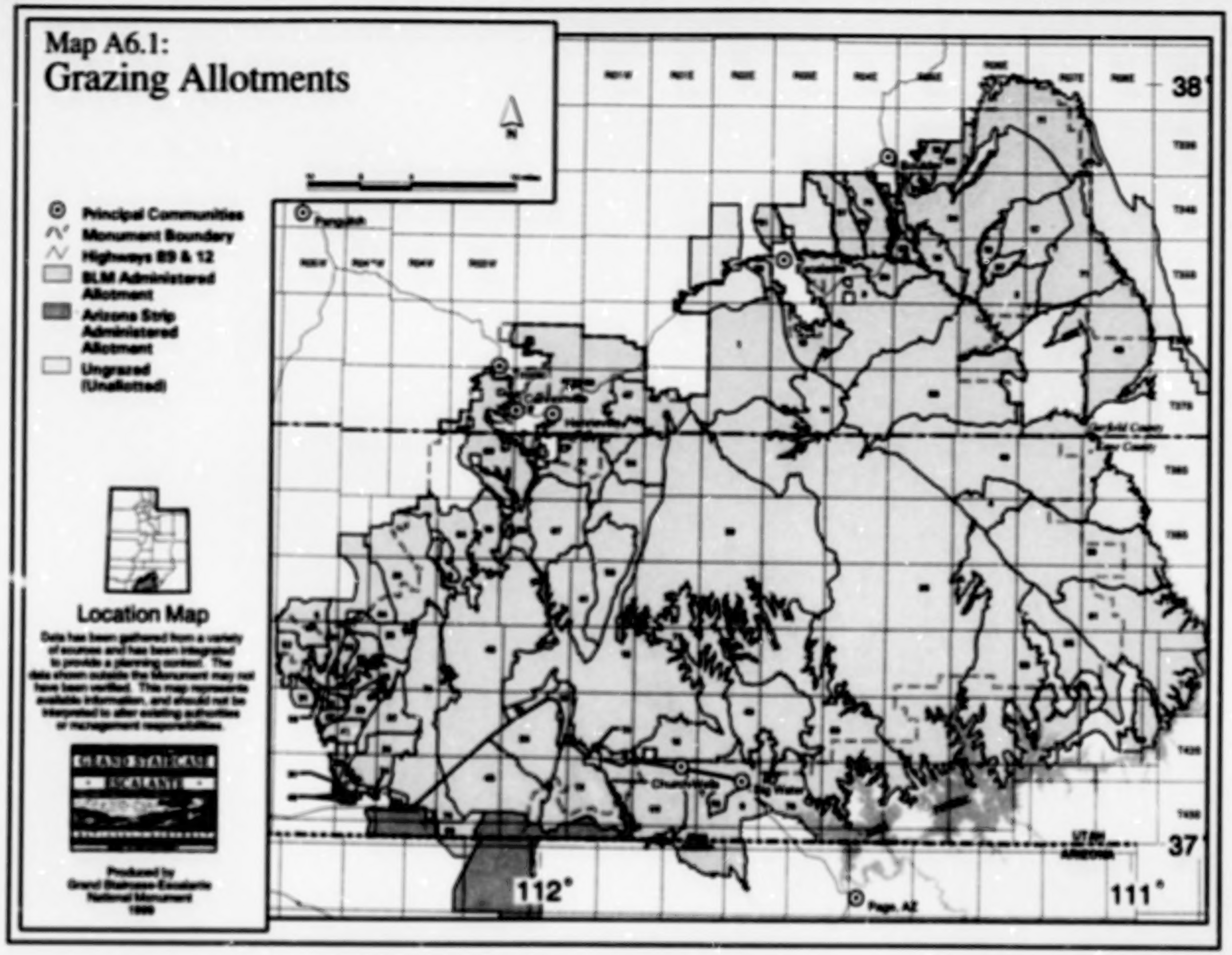
1 Allotments managed by the Bureau of Land Management Arizona Strip Field Office and un-grazed allotments are not listed here, but are shown on Map A6.1.

2 Grazing season-of-use schedules may vary slightly due to yearly climatic conditions, vegetative growth, and availability of livestock water.

3 There are three categories in which allotments are placed. These categories assist in prioritizing the levels and type of resource management applied on each allotment. The "I" (Intensive) category receives the highest management priority due to identified resource conflicts or multiple resource issues. The "M" (Maintain) category describes allotments in which the current level of management is satisfactory in order to maintain resource conditions. The "C" (Custodial) allotments are usually small parcels of public land within larger blocks of private land. The level of management needed is low, provided that resources are not being negatively impacted.

Livestock grazing allotments that are totally or partially within the Monument, and administered by Monument personnel, were placed in an I, M, or C category by analyzing each allotment using the following categories: range condition; resource potential; present productivity; resource use conflicts, controversy; and present management situation. A number of criteria were used to further define both resource conflicts and level of controversy. These include: recreation concerns; deer herd management; multiple wildlife species concerns; watershed values; riparian resources; multiple resource concerns within the allotment; adjacent Federal management within the allotment (Glen Canyon National Recreation Area, Capitol Reef National Park, and Dixie National Forest); vegetation; and archaeological resources. An interdisciplinary team approach was used to categorize each allotment.

358



Map A6.1:
Grazing Allotments

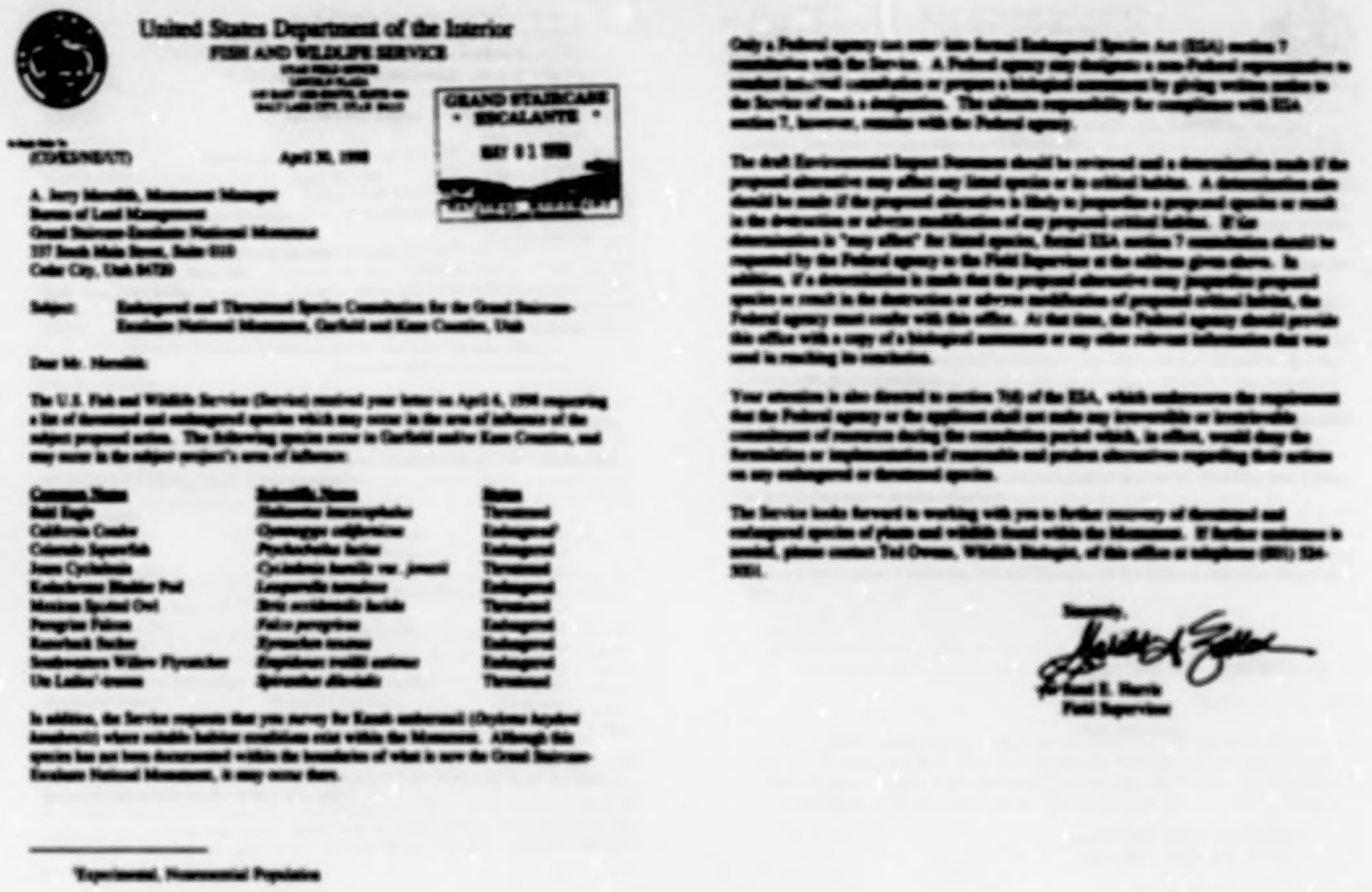
Principal Communities
Monument Boundary
Highways 89 & 12
BLM Administered Allotment
Arizona Strip Administered Allotment
Ungrazed (Unallotted)
Location Map
Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.
GRAND STAIRCASE
ESCALANTE
Produced by
Grand Staircase-Escalante
National Monument
1999
Panguitch
Garfield County
Kane County
Utah
Arizona
Page, AZ
38°
37°
112°
111°

BEST COPY AVAILABLE

Appendix 7

Fish and Wildlife Service Consultation

BEST COPY AVAILABLE



United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
LINCOLN PLAZA
145 EAST 1300 SOUTH, SUITE 404
SALT LAKE CITY, UTAH 84115

GRAND STAIRCASE
• ESCALANTE •
MAY 0 1 1998
NATIONAL MONUMENT

In Reply Refer To
(ES/ES/NE/UT)

April 30, 1998

A. Jerry Meredith, Monument Manager
Bureau of Land Management
Grand Staircase-Escalante National Monument
337 South Main Street, Suite 010
Cedar City, Utah 84720

Subject: Endangered and Threatened Species Consultation for the Grand Staircase-Escalante National Monument, Garfield and Kane Counties, Utah

Dear Mr. Meredith:

The U.S. Fish and Wildlife Service (Service) received your letter on April 6, 1998 requesting a list of threatened and endangered species which may occur in the area of influence of the subject proposed action. The following species occur in Garfield and/or Kane Counties, and may occur in the subject project's area of influence.

Common Name	Scientific Name	Status
Bald Eagle	*Haliaeetus leucocephalus*	Threatened
California Condor	*Gymnogyps californianus*	Endangered[1]
Colorado Squawfish	*Ptychocheilus lucius*	Endangered
Jones Cycladenia	*Cycladenia humilis var. jonesii*	Threatened
Kodachrome Bladder Pod	*Lesquerella tumulosa*	Endangered
Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened
Peregrine Falcon	*Falco peregrinus*	Endangered
Razorback Sucker	*Xyrauchen texanus*	Endangered
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	Endangered
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened

In addition, the Service requests that you survey for Kanab ambersnail (*Oxyloma haydeni kanabensis*) where suitable habitat conditions exist within the Monument. Although this species has not been documented within the boundaries of what is now the Grand Staircase-Escalante National Monument, it may occur there.

Only a Federal agency can enter into formal Endangered Species Act (ESA) section 7 consultation with the Service. A Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment by giving written notice to the Service of such a designation. The ultimate responsibility for compliance with ESA section 7, however, remains with the Federal agency.

The draft Environmental Impact Statement should be reviewed and a determination made if the proposed alternative may affect any listed species or its critical habitat. A determination also should be made if the proposed alternative is likely to jeopardize a proposed species or result in the destruction or adverse modification of any proposed critical habitat. If the determination is "may affect" for listed species, formal ESA section 7 consultation should be requested by the Federal agency to the Field Supervisor at the address given above. In addition, if a determination is made that the proposed alternative may jeopardize proposed species or result in the destruction or adverse modification of proposed critical habitat, the Federal agency must confer with this office. At that time, the Federal agency should provide this office with a copy of a biological assessment or any other relevant information that was used in reaching its conclusion.

Your attention is also directed to section 7(d) of the ESA, which underscores the requirement that the Federal agency or the applicant shall not make any irreversible or irretrievable commitment of resources during the consultation period which, in effect, would deny the formulation or implementation of reasonable and prudent alternatives regarding their actions on any endangered or threatened species.

The Service looks forward to working with you to further recovery of threatened and endangered species of plants and wildlife found within the Monument. If further assistance is needed, please contact Ted Owens, Wildlife Biologist, of this office at telephone (801) 524-5001.

Sincerely,

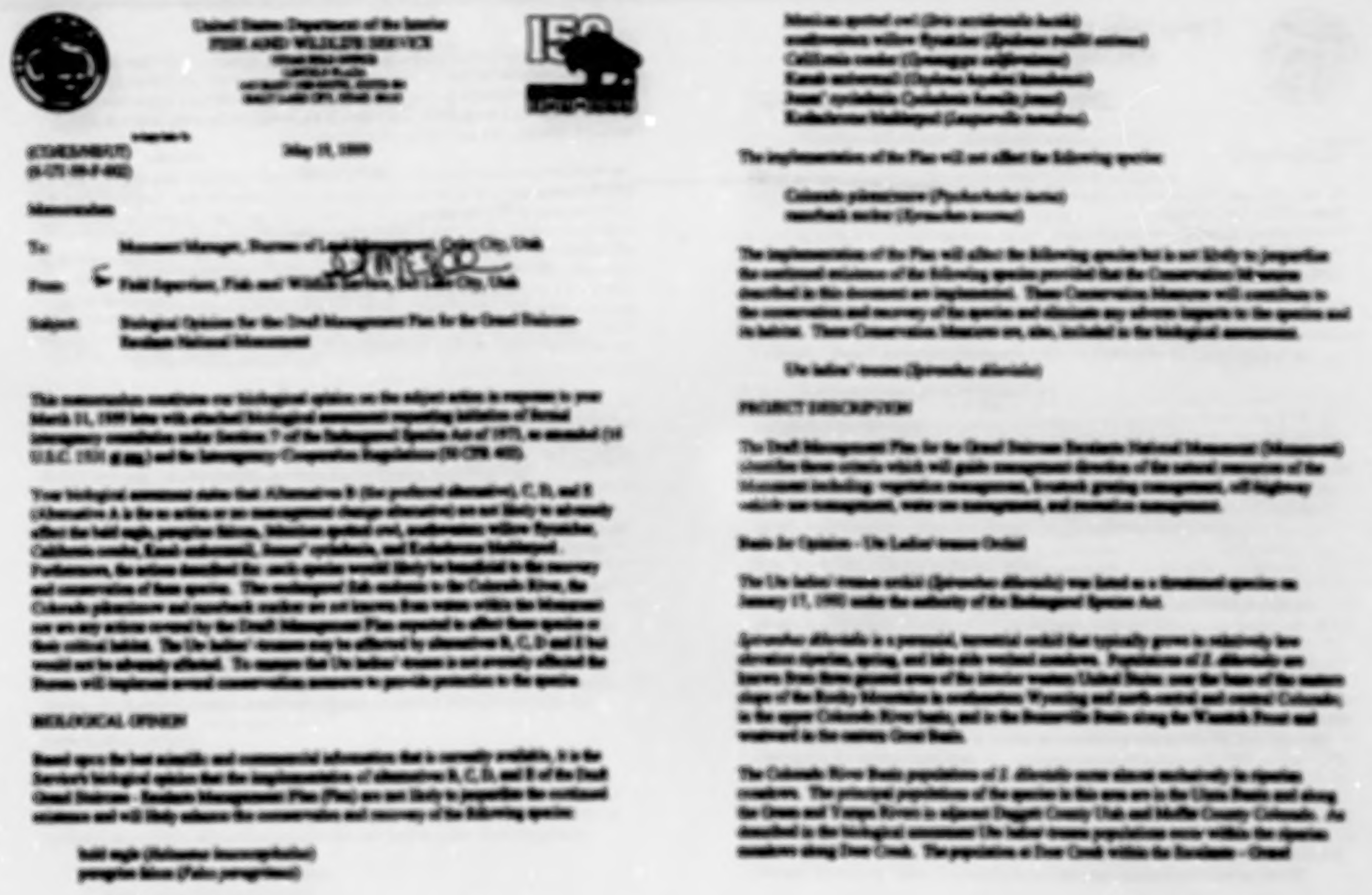
for Reed E. Harris
Field Supervisor

---

[1] Experimental, Nonessential Population

BEST COPY AVAILABLE

361



United States Department of the Interior
FISH AND WILDLIFE SERVICE
[illegible]
[illegible]
[illegible]
[illegible]

[illegible]
[illegible]

May 19, 1999

Memorandum

To: Monument Manager, Bureau of Land Management, Cedar City, Utah

From: Field Supervisor, Fish and Wildlife Service, Salt Lake City, Utah

Subject: Biological Opinion for the Draft Management Plan for the Grand Staircase-Escalante National Monument

This memorandum constitutes our biological opinion on the subject action in response to your March 11, 1999 letter with attached biological assessment requesting initiation of formal (interagency) consultation under Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) and the Interagency Cooperation Regulations (50 CFR 402).

Your biological assessment states that Alternatives B (the preferred alternative), C, D, and E (Alternative A is the no action or no management change alternative) are not likely to adversely affect the bald eagle, peregrine falcon, Mexican spotted owl, southwestern willow flycatcher, California condor, Kanab ambersnail, Jones' cycladenia, and Kodachrome bladderpod. Furthermore, the actions described for each species would likely be beneficial to the recovery and conservation of these species. The endangered fish endemic to the Colorado River, the Colorado pikeminnow and razorback sucker are not known from waters within the Monument nor are any actions covered by the Draft Management Plan expected to affect these species or their critical habitat. The Ute ladies' tresses may be affected by alternatives B, C, D and E but would not be adversely affected. To ensure that Ute ladies' tresses is not adversely affected the Bureau will implement several conservation measures to provide protection to the species.

BIOLOGICAL OPINION

Based upon the best scientific and commercial information that is currently available, it is the Service's biological opinion that the implementation of alternatives B, C, D, and E of the Draft Grand Staircase - Escalante Management Plan (Plan) are not likely to jeopardize the continued existence and will likely enhance the conservation and recovery of the following species:

bald eagle (*Haliaeetus leucocephalus*)
peregrine falcon (*Falco peregrinus*)
Mexican spotted owl (*Strix occidentalis lucida*)
southwestern willow flycatcher (*Empidonax traillii extimus*)
California condor (*Gymnogyps californianus*)
Kanab ambersnail (*Oxyloma haydeni kanabensis*)
Jones' cycladenia (*Cycladenia humilis jonesii*)
Kodachrome bladderpod (*Lesquerella tumulosa*)

The implementation of the Plan will not affect the following species:

Colorado pikeminnow (*Ptychocheilus lucius*)
razorback sucker (*Xyrauchen texanus*)

The implementation of the Plan will affect the following species but is not likely to jeopardize the continued existence of the following species provided that the Conservation Measures described in this document are implemented. These Conservation Measures will contribute to the conservation and recovery of the species and eliminate any adverse impacts to the species and its habitat. These Conservation Measures are, also, included in the biological assessment.

Ute ladies' tresses (*Spiranthes diluvialis*)

PROJECT DESCRIPTION

The Draft Management Plan for the Grand Staircase Escalante National Monument (Monument) identifies those criteria which will guide management direction of the natural resources of the Monument including: vegetation management, livestock grazing management, off highway vehicle use management, water use management, and recreation management.

Basis for Opinion - Ute Ladies' tresses Orchid

The Ute ladies' tresses orchid (*Spiranthes diluvialis*) was listed as a threatened species on January 17, 1992 under the authority of the Endangered Species Act.

Spiranthes diluvialis is a perennial, terrestrial orchid that typically grows in relatively low elevation riparian, spring, and lake side wetland meadows. Populations of *S. diluvialis* are known from three general areas of the interior western United States: near the base of the eastern slope of the Rocky Mountains in southeastern Wyoming and north-central and central Colorado; in the upper Colorado River basin; and in the Bonneville Basin along the Wasatch Front and westward in the eastern Great Basin.

The Colorado River Basin populations of *S. diluvialis* occur almost exclusively in riparian meadows. The principal populations of the species in this area are in the Uinta Basin and along the Green and Yampa Rivers in adjacent Daggett County Utah and Moffat County Colorado. As described in the biological assessment Ute ladies' tresses populations occur within the riparian meadows along Deer Creek. The population at Deer Creek within the Escalante - Grand

Staircase National Monument is a significant outlier population and the only viable population within the Colorado Plateau outside of the immediate vicinity of the Uinta Basin.

Spiranthes diluvialis is endemic to moist soils or wet meadows near springs, lakes, or perennial streams. The range in elevation of known S. diluvialis occurrences is from 1311 to 2134 meters (4,300 to 7,000 feet) (Stone 1993). Most of the western occurrences are along riparian edges, gravel bars, old oxbows, high flow channels and backwater areas, and moist to wet meadows along perennial streams. Jennings (1990) and Coyner (1989, 1990) observed that *S. diluvialis* seems to require "permanent sub-irrigation", indicating a close affinity with floodplain areas where the water table is near the surface throughout the growing season and into the late summer or early autumn. Soils in occupied habitat are always damp to the surface during the flowering period. This observation has been corroborated by ground water monitoring research conducted in Dinosaur National Monument (Martin & Wagner 1992) and in Boulder, Colorado (T. Naumann, City of Boulder Open Space Department, pers. comm., 1993).

Spiranthes diluvialis occurs primarily in areas where the vegetation is relatively open and not overly dense or overgrown (Coyner 1989, 1990 and Jennings 1989, 1990). A few populations in eastern Utah and Colorado are found in riparian woodlands, but *S. diluvialis* seems generally intolerant of shade, preferring open, grass, sedge, and forb-dominated sites instead. Typically, the vegetation is composed of a mixture of obligate-wetland and facultative-wetland species. Plants usually occur as small scattered groups and occupy relatively small areas within the riparian system (Stone 1993).

Spiranthes diluvialis appears to be well adapted to disturbances caused by water movement through flood plains over time (T. Naumann, City of Boulder Open Space Department, pers. comm., 1992, L. Riedel, National Park Service, pers. comm., 1994). The species often grows on point bars and stream edges where sediment deposition and re-vegetation is occurring following recent scour events. *Spiranthes diluvialis* is tolerant of flooding and flood disturbance. For example, point bars and backwater areas (old oxbows, side channels, etc.) are often flooded for several months in the spring during snowmelt.

Very little is known about the life history and demography of *S. diluvialis*. Many orchid species remain below ground for several years in a symbiotic relationship with a mycorhizal fungus. When mature, they may not emerge aboveground every year. *Spiranthes diluvialis* first appears aboveground as a rosette of thickened grasslike leaves that is very difficult to distinguish from other vegetation. A distinctive flower stalk appears in late summer (July through September), and location, identification, and population size estimates are typically determined then. Some individuals remain under ground or do not flower each year. Thus, fluctuations in numbers of observed flowering individuals do not necessarily correspond to population fluctuations or indicate habitat alterations.

CONSERVATION MEASURES

The following conservation measures are stated, in the Grand Staircase - Escalante National Monument Planning Office's "BIOLOGICAL ASSESSMENT FOR THREATENED AND ENDANGERED SPECIES FOR GRAND STAIRCASE - ESCALANTE NATIONAL MONUMENT DRAFT ENVIRONMENTAL IMPACT STATEMENT AND DRAFT MANAGEMENT PLAN".

1. The Bureau will implement an active noxious weed program in the Monument. Areas with threatened or endangered plants will be targeted for this activity as a first priority.

2. Priorities for grazing evaluation will be given to allotments with sensitive riparian and listed species.

3. Grazing as it relates to all endangered species will be addressed during this process and will incorporate the latest research and information in the protection of species. Monitoring plots will be installed and read monthly to determine density and presence of Ute ladies'-tresses as well as impacts in this area.

4. If impacts are documented from grazing uses, fences and/or barriers will be established to prevent entry by people or cattle.

5. Water management priority in Deer Creek will be to maintain natural flows and flood events

6. Surveys for *S. diluvialis* will be completed during this next growing season (1999) and results of this survey will be used to determine recreation management actions.

7. If plants are found to be growing in the campground, appropriate actions will be taken to prevent trampling of the plants by visitors to the campground area. These actions may include replanting native vegetation or construction of barriers.

8. Individual campground sites may be closed if necessary to protect these plants in the campground. Barriers will be constructed and restoration work initiated to stabilize the soil and banks in the campground area and provide the best possible habitat for this plant.

9. No expansion that proposes further impact to the riparian area will be considered, as it would increase the potential for impacts to this population.

10. The existing trail in Deer Creek will be relocated out of the riparian area for a length of 1.5 miles below the crossing with the Burr Trail when possible.

11. Barriers will be placed on the creek side of the trail to ensure compliance.

12. Interpretive signs and brochures will be provided along the trail and at the parking area to educate the public about the species and the actions that are being implemented to protect it.

13. Restoration of the current social trail will be initiated, including obliteration of the trail by planting native species, and moving soil to return the area to its natural grade. Group numbers

and alterations may be initiated along this trail if continued monitoring indicates that impacts from visitor use in the area is still causing impacts.

CONCLUSION

This concludes our biological opinion on the impacts of proposed project. This opinion was based upon the information described herein. If new information becomes available, new species listed, or any project change which alters the implementation and operation of the project from that which is described in the biological assessment and which may affect any endangered or threatened species in a manner or to an extent not considered in this biological opinion (see 50 CFR 402.16), formal Section 7 consultation should be re-initiated.

Appendix 8

Utah Sensitive Wildlife Species

BEST COPY AVAILABLE

365

INTRODUCTION

The Purpose of the Utah Sensitive Species list is to identify those species in the State that are the most vulnerable to population or habitat loss. This list provides land managers, wildlife managers, and concerned citizens with a brief overview of the conservation status of listed species. By developing and implementing timely and sufficient conservation measures for sensitive species, Federal listing of these species under the Endangered Species Act may be precluded.

DEFINITIONS

A. **Wildlife:** for the purposes of this list, includes the following groups animals in Utah that are found in nature: all vertebrates, crustaceans (including brine shrimp and crayfish), and mollusks.

B. **Extinct Species:** any wildlife species that has disappeared in the world.

C. **Extirpated Species:** any wildlife species that has disappeared from Utah since 1800.

D. **State Endangered Species (E):** any wildlife species or subspecies which is threatened with extirpation from Utah or with extinction resulting from very low or declining numbers, alteration and/or reduction of habitat, detrimental environmental changes, or any combination of the above. Continued long-term survival is unlikely without implementation of special measures. A management program is needed for these species if a Recovery Plan has not been developed.

E. **State Threatened Species (T):** any wildlife species or subspecies which is likely to become an endangered species within the foreseeable future throughout all or a significant part of its range in Utah or the world. A management program is needed for these species if a Recovery Plan has not been developed.

F. **Species of Special Concern:** any wildlife species or subspecies that: has experienced a substantial decrease in population, distribution and/or habitat availability (SP), or occurs in limited areas and/or numbers due to a restricted or specialized habitat (SD), or has both a declining population and a limited range (SP/SD). A management program, including protection or enhancement, is needed for these species.

G. **Conservation Species (CS):** any wildlife species or subspecies, except those species currently listed under the Endangered Species Act as threatened or endangered, that meets the State criteria of endangered, threatened or of special concern, but is currently receiving sufficient special management under a Conservation Agreement developed and/or implemented by the State to preclude its listing above. In the event that the conservation agreement is not implemented, the species will be elevated to the appropriate category.

Table A8.1
Sensitive Bird Species Found Within The Monument

Bird Species	Agency Listing			
	Utah Division of Wildlife Resources	United States Fish and Wildlife Service	Utah Natural Heritage Program	Bureau of Land Management
Condor, California (*Gymnogyps californianus*)	SD	E/NE	SR	S
Curlew, Long-billed (*Numenius americanus*)	SP/SD		S3B	S
Eagle, Bald (*Haliaeetus leucocephalus*)	T	T	S1B, S3N	T
Falcon, Peregrine (*Falco peregrinus anatum*)	E	E	S2	E
Flycatcher, Southwestern Willow (*Empidonax traillii extimus*)	E	E	S1B	E
Goshawk, Northern (*Accipiter gentilis atricapillus*)	SP		S3	S
Grosbeak, Blue (*Guiraca caerulea*)	SP/SD		S3S4B	S
Grouse, Sage (*Centrocercus urophasianus*)	SP/SD		S2S3	S
Hawk, Ferruginous (*Buteo regalis*)	T		S2N, S2S3B	S
Hawk, Swainson's (*Buteo swainsoni*)	SP		S3B, SRN	S
Osprey (*Pandion haliaetus*)	SD		S1S2B	S
Owl, Burrowing (*Athene cunicularia hypugaea*)	SP		S3B	S
Owl, Short-eared (*Asio flammeus flammeus*)	SP		S2S3	S
Owl, Mexican Spotted (*Strix occidentalis lucida*)	T	T	S1	T
Pelican, American White (*Pelecanus erythrorhynchos*)	SD		S2B	S
Sapsucker, Williamson's (*Sphyrapicus thyroideus*)	SD		S2S3B, SAN	S
Tern, Black (*Chlidonias niger*)	SP		S2S3B	S
Tern, Caspian (*Sterna caspia*)	SP		S1B	S
Woodpecker, Lewis' (*Melanerpes lewis*)	SP/SD		S2S3	S
Yellowthroat, Common (*Geothlypis trichas*)	SP		S3B	S

Table A8.2
Sensitive Mammal Species Found Within the Monument

Mammal Species	Agency Listing			
	Utah Division of Wildlife Resources	United States Fish and Wildlife Service	Utah Natural Heritage Program	Bureau of Land Management
Bat, Allen's Big-eared (*Idionycteris phyllotis*)	SD		S1	S
Bat, Big Free-tailed (*Nyctinomops macrotis*)	SP/SD		S2	S
Bat, Brazilian Free-tailed (*Tadarida brasiliensis mexicana*)	SP/SD		S3S4	S
Bat, Spotted (*Euderma maculatum*)	SP		S2	S
Bat, Townsend's Big-eared (*Plecotus townsendii*)	SP/SD		S2	S
Bat, Western Red (*Lasiurus blossevillii*)	SP/SD		S1	S
Myotis, Fringed (*Myotis thysanodes*)	SD		S3	S
Myotis, Western Small-footed (*Myotis ciliolabrum*)	SD		S3S4	S
Ringtail (*Bassariscus astutus*)	SD		S4	S
Vole, Virgin River Montane (*Microtus montanus rivularis*)	SP/SD		S2	S

Table A8.3
Sensitive Fish Species Found Within the Monument

Fish Species	Agency Listing			
	Utah Division of Wildlife Resources	United States Fish and Wildlife Service	Utah Natural Heritage Program	Bureau of Land Management
Chub, Roundtail (*Gila robusta*)	T		S2	S
Pikeminnow, Colorado (*Ptychocheilus lucius*)	E	E	S1	E
Sucker, Bluehead (*Catostomus discobolus*)	SP		S4	S
Sucker, Flannelmouth (*Catostomus latipinnis*)	SP		S3S4	S
Sucker, Razorback (*Xyrauchen texanus*)	E	E	S1	E
Trout, Colorado River Cutthroat (*Oncorhynchus clarki pleuriticus*)	CS		S2	S

BEST COPY AVAILABLE

368

Table A8.4
Sensitive Amphibian Species Found Within The Monument

Amphibian Species	Agency Listing			
	Utah Division of Wildlife Resources	United States Fish and Wildlife Service	Utah Natural Heritage Program	Bureau of Land Management
Toad, Arizona (*Bufo microscaphus microscaphus*)	SP		S2	S

Table A8.5
Sensitive Reptile Species Found Within the Monument

Reptile Species	Agency Listing			
	Utah Division of Wildlife Resources	United States Fish and Wildlife Service	Utah Natural Heritage Program	Bureau of Land Management
Chuckwalla, Glen Canyon (*Sauromalus obesus multiforaminatus*)	SP/SD		S2	S
Kingsnake, California (*Lampropeltis getula californiae*)	SD		S3	S
Kingsnake, Utah Mountain (*Lampropeltis pyromelana infralabialis*)	SP		S2S3	S
Lizard, Desert Night (*Xantusia vigilis vigilis*)	SD		S2S3	S
Lizard, Utah Night (*Xantusia vigilis utahensis*)	SD		S2S3	S
Snake, Mojave Patch-nosed (*Salvadora hexalepis mojavensis*	SD		S2S3	S
Snake, Painted Desert Glossy (*Arizona elegans philipi*)	SD		S2	S
Snake, Southwestern Black-headed (*Tantilla hobartsmithi*)	SD		S2	S
Whiptail, Plateau Striped (*Cnemidophorus velox*)	SP/SD		S3	S

S = Utah BLM sensitive species (IM UT 97-66, 1997) E = Federally listed endangered species T = Federally listed threatened species
Utah Natural Heritage Program definition of ranks:

S1	critically imperiled	SA	accidental
S2	imperiled	SR	reported
S3	rare or uncommon	-B	breeding rank
S4	common	-N	non-breeding rank
S5	abundant and secure		

As defined in the Natural Heritage Program Operations Manual, a numeric rank (1 through 5) is assigned to indicate the status of a species at the State level. These ranks are based primarily on the number of occurrences of the species, along with other factors such as overall abundance, extent of geographic range, population trends, and threats. The range in number of occurrences suggested for each numeric rank below is not an absolute guideline, but only the starting point in the ranking process.

S1 Indicates extreme rarity or other factor(s), making the species especially vulnerable to extinction or extirpation (typically 5 or fewer occurrences or very few remaining individuals or acres).

S2 Indicates rarity or other factor(s), making the species very vulnerable to extinction or extirpation (6 to 20 occurrences or few remaining individuals or acres).

S3 Indicates a species that is either very rare and local throughout its range or found locally (even abundantly at some of its locations) within a restricted range, or vulnerable to extinction or extirpation because of other factors (21 to 100 occurrences).

S4 Indicates a species that is widespread, abundant, and apparently secure, though it may be quite rare in parts of its range, especially at the periphery (usually more than 100 occurrences).

S5 Indicates a species that is demonstrably widespread, abundant, and secure, though it may be quite rare in parts of its range.

A range spanning two (or even three) of the numeric ranks denotes a range of uncertainty about the exact status of the species (e.g., **S1S2**); ranges cannot skip more than one rank (e.g., **S1S4** is not allowed).

As more information is gathered, some species are added to the tracking list and some are dropped from the list. Our increasing understanding allows the ranks to be reevaluated and adjusted periodically.

Appendix 9

Special Status Plant Species

BEST COPY AVAILABLE

Table A9.1
Special Status Plant Species

Common Name	Scientific Name	Status		
		BLM[1]	Federal[1]	UNHP[2]
Atwood's camissonia	*Camissonia atwoodii*	S		G1/S1
Slender camissonia	*Camissonia exilis*	S		G1/S1
Jones' cycladenia	*Cycladenia humilis var. jonesii*	T	T	G3G4T2/S2
Higgins biscuitroot	*Cymopteris acualis var. higginsii*	S		G5T1/S1
Hole-in-the-rock prairie clover	*Dalea flavescens var. epica*	S		G5T1Q/S1
Zion daisy	*Erigeron sionis var. sionis*	S		G2G3/S2S3
Alcove daisy	*Erigeron zothecinus*	S		G1Q/S1
Spiny gilia	*Gilia latifolia var. imperialis*	S		G4T2/S2
Alcove bog-orchid	*Habenaria zothecina*	S		G2S2
Kodachrome bladderpod	*Lesquerella tumulosa*	E	E	G1Q/S1
Kane breadroot	*Pediomelum epipsilum*	S		G1/S1
Sandloving penstemon	*Penstemon ammophilus*	S		G2G3/S2S3
Ute ladies'-tresses	*Spiranthes diluvialis*	T	T	G2/S1
Cronquist's woody aster	*Xylorhiza cronquistii*	S		G1QS1

1. **S** = Utah BLM sensitive species (1996) **E** = Federally listed endangered species **T** = Federally listed threatened species

2. **Utah Natural Heritage Program (UNHP) Status Rank** (Utah Reclamation Mitigation and Conservation Commission, U.S. Department of the Interior, Utah Division of Wildlife Resources. 1997. Inventory of Sensitive Species and Ecosystems in Utah - Endemic and Rare Plants of Utah: An Overview of Their Distribution and Status)

BEST COPY AVAILABLE

372

A numeric rank (1 through 5) is assigned to indicate the status of a species at both the Global or rangewide level (G) and at the State level (S). Where appropriate, a Trinomial rank (T) is also assigned to indicate the rangewide distribution and abundance at the infraspecific (variety or subspecies) level. These ranks are based primarily on the number of occurrences of the species, along with other factors such as overall abundance, extent of geographic range, population trends, and threats. The range in number of occurrences suggested for each numeric rank is not an absolute guideline, but only the starting point in the ranking process:

G1 or T1 or S1	Indicates extreme rarity or other factor(s), making the species especially vulnerable to extinction or extirpation (typically 5 or fewer occurrences or very few remaining individuals or acres).
G2 or T2 or S2	Indicates rarity or other factor(s), making the species very vulnerable to extinction or extirpation (6 to 20 occurrences or few remaining individuals or acres).
G3 or T3 or S3	Indicates a species that is either very rare and local throughout its range or found locally (even abundantly at some of its locations) within a restricted range, or vulnerable to extinction or extirpation because of other factors (21 to 100 occurrences).
G4 or T4 or S4	Indicates a species that is widespread, abundant, and apparently secure, though it may be quite rare in parts of its range, especially at the periphery (usually more than 100 occurrences).
G5 or T5 or S5	Indicates a species that is demonstrably widespread, abundant, and secure, though it may be quite rare in parts of its range.

A range spanning two (or even three) of the numeric ranks denotes a range of uncertainty about the exact status of the species (e.g., **S1S2**); ranges cannot skip more than one rank (e.g., **S1S4** is not allowed). A qualifier of **"Q"** is added to a rank to denote a taxonomic question.

Appendix 10

Areas of Critical Environmental Concern

BEST COPY AVAILABLE

Introduction

Nominations for Areas of Critical Environmental Concern (ACEC) were considered by an evaluation team to see if they met the designation criteria. Nominations were also considered in light of the special management attention they would receive through the establishment of the Monument. The Monument is unique in the realm of Bureau of Land Management (BLM) public lands administration in regards to the need for ACECs. After careful evaluation of the resources recognized in each of the nominations, it was determined that the protection of these resources would be substantially equivalent under either Monument authority or ACEC designation. Therefore, it was concluded that no ACECs would be designated under the Monument Management Plan.

Existing special management areas such as Outstanding Natural Areas (ONAs) and Research Natural Areas (RNAs) were also considered for ACEC protection. The original designations are recommended to be preserved because of the historical context of these units to Monument lands and to Glen Canyon National Recreation Area, and also due to public recognition through time.

Evaluation Criteria:

To be considered for designation as an ACEC, an area must meet the requirements of relevance and importance as described in the Code of Federal Regulations (43 CFR 1610.7.2). The definitions for the criteria of relevance and importance are as follows:

Relevance

An area is considered relevant if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (for example: rare or sensitive archeological resources and religious or cultural resources important to Native American Indians).
2. A fish and wildlife resource (for example: habitat for endangered, sensitive, or threatened species, or habitat essential for maintaining species diversity).
3. A natural process or system (for example: endangered, sensitive, or threatened plant species; rare, endemic, or relict plants or plant communities; rare geologic features).
4. A natural hazard (for example: areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process that it has become part of a natural process.

Importance

The value, resource, system, process, or hazard described above must have substantial significance to satisfy the importance criteria. This generally means it is characterized by one or more of the following:

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of the Federal Land Policy and Management Act.
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

ACEC Nominations

The following nominations were received as of June 23, 1998:

- Owen Severance - Scenic Routes (received December 22, 1993)
- Owen Severance - Fourmile Bench Old Tree Area (Received March 2, 1998)

- Utah Farm Bureau (John B. Keeler) - 48 Grazing Allotments (received March 3, 1998). A second letter received April 15, 1998 from John B. Keeler stated that the Farm Bureau felt that Monument designation provides adequate protection without ACECs.
- The Nature Conservancy of Utah (Joel S. Tuhy) - Nomination "that the existing No Mans Mesa Research Natural Area (RNA) be formally designated as an ACEC through the Monument planning process that is now underway." (1994 nomination, received again March 16, 1998)
- Southern Utah Wilderness Alliance - A nomination requesting that the HR1500 areas within the Monument (see discussion below under **HR 1500 Areas**) become ACECs to protect wilderness values. (1994 nomination, received again March 19, 1998)
- Southern Utah Wilderness Alliance - Nominated the entire Monument for protection under the ACEC category. They asked that previous SUWA correspondence on this issue be disregarded. (received March 23, 1998) Another letter, received April 9, 1998, discussed the use of ACECs in protecting Wilderness Values in the Monument
- The Wilderness Society - Nomination incorporated by reference the ACEC nominations made in 1994 by SUWA, plus Fortymile Gulch and Hurricane Wash (see **HR 1500 Areas** below for a discussion of these nominations) (received March 23, 1998)
- Grand Canyon Wildlands Council (Kelly Burke) - They "maintain that ACEC criteria applies to, and is met by, the Grand Staircase-Escalante National Monument as an ecological whole." "...The Grand Canyon Wildlands considers the entire Monument an Area of Critical Environmental Concern. When applied to smaller units, it seems problematic whether ACEC status would provide an additional meaningful layer of protection, and such designations may prove counterproductive in protecting the Monument." (received March 20, 1998)
- John R. Swanson - Urges that the entire Grand Staircase-Escalante National Monument become an ACEC. (received March 23, 1998)

Table A10.1 provides an evaluation of the nominations received.

HR 1500 Areas

Nominations for HR 1500 areas were received from Southern Utah Wilderness Alliance (SUWA) during the earlier 1994 planning process for the Escalante/Kanab Resource Management Plan (RMP) and from more recent 1998 correspondence from both SUWA (nomination subsequently withdrawn) and from the Wilderness Society. In their correspondence, these organizations requested the protection of areas being proposed in legislation for wilderness designation. Specifically noted were the protection of wilderness values. It is explicit in the current BLM Planning Manual (1613.06) that ACECs are not to be designated to protect areas for wilderness values:

"The FLPMA requires that priority shall be given to the designation and protection of ACECs. The ACECs are identified, evaluated, and designated through BLM's resource management planning process. An ACEC designation is the principal BLM designation for public lands where special management is required to protect important natural, cultural and scenic resources, or to identify natural hazards. Therefore, BLM managers will give precedence to the identification, evaluation, and designation of areas which require "special management attention" during resource management planning. "*An ACEC designation will not be used as a substitute for wilderness suitability recommendations.*" (Italics added)

In compliance with this policy, nominations of HR1500 areas were not considered since the values to be protected were wilderness values. Wilderness suitability is being considered outside this Plan.

BEST COPY AVAILABLE

376

Table A10.1
Areas of Critical Environmental Concern (ACECS)

Resource Value	Location	Evaluation/Comments
Entire Monument	Area within Monument	The entire Monument was found to qualify under both relevance and importance. Monument designation already gives authority to provide special management emphasis. Designating the entire Monument as an ACEC would be duplicative.
Grazing Allotments	All allotments within the Monument	Grazing allotments may have historical relevance, but do not qualify under the criteria for importance. Consensus by evaluators that they do not need special management. Nominations subsequently withdrawn by nominee.
Scenic Access Routes	US-89; Utah 12, 9, and 143; Cottonwood Wash Road from Utah 12 to US 89; the road to Pahreah Townsite from US 89; the Burr Trail from Boulder to Capitol Reef, and the Hole-in-the-Rock Road from Utah 12 to Glen Canyon NRA.	Scenic Access Routes are historically relevant. U-12, Cottonwood, Old Pahreah, Burr Trail, and Hole-in-the-Rock Trail have more than local significance. Historic and scenic significance would be protected under the provisions of the Monument Management Plan. (See the **History** and **Visual Resource Management** sections in Chapter 2.)
Fourmile Bench Old Tree Area	Fourmile Bench	The Old Tree area is relevant as a natural system and is of more than local significance. It is also irreplaceable, and vulnerable to adverse change. The significance of these trees would be managed and protected under the Monument Management Plan.
No Mans Mesa	About 30 miles northwest of Kanab	No Mans Mesa is an historically relevant natural system, and relict plant community. It is also irreplaceable and vulnerable to adverse change. The designation as a Research Natural Area. Further protection is provided through the decisions in this Plan, thus ACEC designations is not necessary.

Appendix 11

Wild and Scenic River Suitability

BEST COPY AVAILABLE

INTRODUCTION

This Proposed Plan makes Wild and Scenic River (WSR) suitability recommendations pursuant to section 5(d)(1) of the WSR Act. WSR designations are made by Congress, or the Secretary of the Interior upon application of a State Governor. As described in the Draft Management Plan/Draft Environmental Impact Statement (DEIS), representatives from Grand Staircase-Escalante National Monument (GSENM), Bryce Canyon National Park, Glen Canyon National Recreation Area, and Dixie National Forest worked together to discuss suitability recommendations made in this document. Land managers responsible for managing the various segments came to consensus on segments which overlapped jurisdictions. They also made decisions for segments that were under their own jurisdictions. Due to differing agency mandates and stages in the study process, those segments lying within GSENM, as well as river segments found eligible between the Monument boundary and the Arizona State line, are assessed in this report. Glen Canyon National Recreation Area, Dixie National Forest, and Bryce Canyon National Park are currently working on suitability assessments for the segments within their jurisdictions.

Input was given by Kane County Water Conservancy District, the office of the Governor of Utah, Utah Division of Natural Resources, and Utah Division of Water Resources, pursuant to the statewide Memorandum of Understanding (MOU) described in the DEIS. All meetings held in regards to the MOU were open and announced to the public.

The suitability assessment is divided into two parts for GSENM. The first part assesses the Escalante River system, which includes the main stem of the Escalante River and many of its tributaries. The second part assesses the Paria River system and several of its tributaries.

Interim Management

Until a Record of Decision is signed for the Approved Plan, protection of segments found eligible (regardless of suitability finding) would be addressed on a case-by-case basis. This means that whenever any proposed action would effect these values, impacts would be analyzed through the NEPA process, mitigation and alternatives would be considered to avoid such impacts.

Once a Record of Decision is signed, segments recommended as non-suitable would be dropped from special management, and would be managed under the provisions of the Monument Management Plan. Segments recommended as suitable would be managed for the preservation of outstandingly remarkable values, the tentative classifications, and their free-flowing status.

Escalante River System

The Escalante River System begins on the Aquarius Plateau. The river system extends from the top of Boulder Mountain south into the Colorado River (Lake Powell). The river system lies within the Colorado Plateau Physiographic Province, Canyonlands, and Southern High Plateaus subprovinces. Dominant vegetation zones change with elevation and precipitation levels. Headwaters begin in the Montane Zone, which contains forests of ponderosa pine, Douglas fir, Englemann spruce, and blue spruce. The Piñon and Juniper Zone follows, blending eventually with the Sagebrush Zone, and ending in the lower Shadscale Zone. It flows through the Plateau Uplands water province and is in the Escalante River Drainage Basin.

Although the main stem of the Escalante begins northwest of the town of Escalante, most of the flow comes from its side tributaries such as Boulder Creek, Pine Creek, Death Hollow, Sand Creek, The Gulch, and Calf Creek. These tributaries are located downstream from the town of Escalante. Boulder Creek and Deer Creek flow through or near the town of Boulder.

The headwaters of the Escalante River are composed of several tributaries in the Escalante Ranger District of Dixie National Forest. From there, the river flows through the BLM-managed GSENM, and then enters Glen Canyon National Recreation Area. It ends at Coyote Gulch, near Lake Powell. The Escalante River System within GSENM contains 215 river miles, 211 miles (or 99 percent) of which are on public lands managed by the Bureau of Land Management (BLM). This suitability assessment covers that portion of the river and its major tributaries within the boundaries of GSENM.

The Escalante River was first identified by the Departments of Interior and Agriculture as a candidate "inventory" river to be studied as a possible addition to the National Wild and Scenic River System on September 11, 1970. It was later identified as part of the Nationwide Rivers Inventory by the National Park Service.

As prescribed in the WSR Act and by BLM policy, the area included in this evaluation is the river area and its adjoining tributaries within the river corridor. Generally, the corridor width cannot exceed an average of 320 acres per mile, which is usually measured approximately 1/4 mile from the mean high-water mark on both sides of the channel. Few designated WSR have a boundary that is exactly 1/4 of a mile from the ordinary high water mark along their entire length. Corridor boundaries for Federally designated and administered WSRs may vary based on a number of conditions, but are usually delineated by legally identifiable lines (survey or property lines). They may also be identified by some form of on-the-ground physical features (i.e., topography, natural or man-made features such as canyon rims, roads, etc.), which provide the basis for protecting the river's identified values and practicality in managing those values.

Suitability Recommendations for the Proposed Plan

About 143 miles would be considered suitable for inclusion into the National Wild and Scenic Rivers System (NWSRS).

The following segments are recommended as non-suitable and would be released from further WSR consideration: the upper part of Harris Wash, Dry Hollow Creek, Cottonwood Canyon, Blackwater Canyon, Lamanite Arch Canyon, Water Canyon, west fork of Steep Creek, Lower Horse Canyon, Wolverine Creek, Little Death Hollow, unnamed tributary west of Calf Creek, Phipps Wash and tributaries, and the upper part of Twentyfive Mile Wash and north tributary.

Cottonwood Canyon, Wolverine Creek, Little Death Hollow, Phipps Wash, Cottonwood Creek, parts of Harris Wash (the parts that do not have known southwestern willow flycatchers), side canyons into the Gulch, Water Canyon, Blackwater Canyon, Lamanite Arch Canyon, Dry Hollow Creek, and the unnamed tributary west of Calf Creek were determined non-suitable because the quality of river characteristics in these segments would not significantly enhance nor contribute to the NWSRS. Nevertheless, the outstandingly remarkable riparian, scenic, geologic, recreational, cultural, and habitat values identified for these rivers will be protected under the Monument Plan.

Lower Horse Canyon, while eligible, was determined to be non-suitable because of management conflicts (one of the suitability criteria identified in BLM Manual Section 8351). An existing water diversion in that segment of the river could be used in the future to remove livestock grazing from the riparian area, which would conflict with WSR status.

The following factors (which are outlined in the WSR Act) were analyzed for the Escalante River System as a whole. Specific facts and concerns pertaining to individual segments are presented in Table A11.1 and A11.2.

Characteristics which do or do not make the area a worthy addition to the NWSRS:

The segments identified in this report are on the Colorado Plateau Physiographic Province, Canyonlands and High Plateaus subprovinces. Currently, there are no designated components of the NWSRS within this province. The Escalante River and Calf Creek Falls were specifically listed as objects of historic or scientific interest when the Monument was designated.

The Escalante River System is considered a worthy addition to the NWSRS based on the following outstandingly remarkable values:

- **Scenic** - Throughout the spectacular Escalante River system, rugged canyons, colorful outcroppings, and imposing cliff faces provide unique opportunities for sightseeing and photography. The river has carved a sheer-walled canyon that reaches depths of 1,100 feet.

- **Recreational** - The Escalante River and major tributaries provide outstanding opportunities for hiking, backpacking, boating, visiting cultural sites, photography and nature viewing. The canyons and colorful sandstone outcroppings, known as slickrock, attract visitors from throughout the United States and other countries. Water sources are plentiful in the Escalante Canyons, allowing easier travel. Canyons with similar geology are difficult to experience in other parts of the Colorado Plateau due to lack of water.

- **Geological** - Colorful canyon walls composed of layers of sandstone, siltstone, and limestone record the geologic past, including extensive sand dunes, invasions by seaways, and deposits made by broad river systems. Tens of thousands of years of weathering and erosion have resulted in the formation of numerous natural bridges and arches throughout the river corridor area. The canyons vary in width from a mile to only inches wide. These narrow canyons are commonly called slot canyons and number in the hundreds in this river system. Although these features are common to the Colorado Plateau, the number and variety of natural bridges, arches, and slot canyons make this area distinctive and exceptional.

- **Riparian** - The river segments provide unique riparian corridors through an otherwise arid region. A variety of wildlife species, both aquatic and terrestrial, rely upon the river for habitat. The riparian area contains occupied or suitable habitat for numerous sensitive or special status wildlife and plant species. The Escalante River System is home to the following documented wildlife groups: 8 amphibians, 190 birds, 54 mammals, 20 fishes, and 20 reptile species. Among these are the threatened and endangered southwestern willow flycatcher, peregrine falcon, Mexican spotted owl, and wintering bald eagles.

- **Historic** - The Escalante River system has provided water for humans in a relatively arid environment for at least 10,000 years. Prehistoric Native American Indian sites are prolific throughout the system. It continues to provide water for humans today.

Other values that support the addition of the Escalante River to the NWSRS are significant paleontological values, including fossil trackways and petrified wood, and cultural sites that would be enhanced and protected by designation.

The Escalante River, Boulder Creek, Deer Creek, Sand Creek, Twentyfive Mile Wash, Calf Creek, The Gulch, Steep Creek, Coyote Gulch, Harris Wash, Mamie Creek and Death Hollow were included in *A Citizen's Proposal to Protect the Wild Rivers of Utah*.

Current Uses and Land Ownership Concerns:

- **Energy and Minerals:** There are 2 oil and gas leases within the river area near the confluence of Phipps Wash and the Escalante River (at T35S, R5E, S18), and an active lease on a small portion of Mamie Creek. There are no mining claims, mineral sites, or coal leases in the river area. Existing valid claims or leases within the river boundary remain in effect, and activities may be allowed subject to regulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment. To the extent that the holders of valid existing rights are entitled to reasonable access, the BLM would work to provide access consistent with the Proclamation and the protection of outstandingly remarkable values.

- **Water Resource Developments, Water Rights and Instream Flow:** Existing water developments and rights held on the river area are associated with livestock, agricultural and domestic use. Ninety-nine surface, 6 underground, and 8 spring water rights within 1 mile of each stream course in the Monument are on record with the State of Utah. Of these, the BLM holds the rights to 40 surface, 0 underground, and 4 springs. Utah Division of Water Rights reports a total of 1.55 cfs surface diversions in the Escalante River, Calf Creek, Lower Deer Creek, and The Gulch. Most of the surface diversions are located on private land or on segments classified as Recreational. WSR designation would not affect these existing water rights as they are senior to any rights acquired through designation.

There is some concern from local water conservancy districts and potential users over the possible effects designation could have on proposed or potential projects. This concern should be addressed by Congress upon WSR designation. No action taken in this Plan or WSR recommendation can establish an appropriation or Federal reserved water right. A Congressional Act designating a WSR may or may not establish a Federal reserved water right. If Congress creates a reserved right, the BLM or the State of Utah may establish instream flows necessary to meet the purposes of the designation. The nature of such a condition would depend on the wording in the Act. Protective management for suitability could affect specific proposals if the BLM would have to issue a right-of-way across BLM managed lands. At this time, there are no project proposals on suitable river segments.

- **Forestry, Agriculture and Livestock Grazing:** There are no forested lands within the study area. Agriculture in the form of irrigated farmlands occurs near the communities of Escalante and Boulder. These areas of agricultural use are not within the study area. However, farming has an impact on the river study area. Water is diverted out of the channels to irrigate the farmland and the runoff returns to the river bed. When this water returns, it can carry residues of agricultural chemicals, nutrients, and salts.

  Livestock grazing is permitted on public lands throughout the river area. There are 13 allotments in the study area. Grazing along the river and on the uplands is primarily a fall/winter/spring operation. The rivers provide a significant source of water in this area for livestock. Grazing would continue to be governed by applicable laws and regulations.

  Several fences cross the rivers within their corridors. These include allotment boundary fences, pasture fences, and state section line fences. If not removed after use, these wire fences typically wash out or are taken up during high flows but are rebuilt each year as flows recede or grazing operations start up for the season. Landowners and ranchers are concerned that they will not be able to maintain these fences with designation. WSR designation would not affect the ability of landowners or ranchers to maintain fences.

- **Recreation Use and Facilities:** The Escalante River and major tributaries provide outstanding opportunities for recreational activities. These include hiking (canyoneering), backpacking, bird-watching, photography, viewing cultural sites, camping, and nature study. Recreational use is estimated to be 29,300 visits per year (based on 1997 RMIS data). Developed or semi-developed trail heads and trails are located at Calf Creek Lower and Upper Falls, Deer Creek, Escalante River outside of the town of Escalante, Highway 12, Harris Wash, and The Gulch.

  The BLM operates Calf Creek Campground along Calf Creek, and Deer Creek Campground along Deer Creek. These sites received a total of 30,210 visits in FY 1997. Access to Calf Creek Falls, Deer Creek and other river-based activities is available at these sites.

- **Transportation/Utility Facilities:** Utah State Route 12 travels over the Escalante at the dividing point between segments 1 and 2. Along tributaries, dirt roads approach the water's edge and in some places, ford the river bed. An overhead utility line crosses over the river near State Route 12. Another line crosses Lower Sand Creek near its northern end. WSR designation would not affect the ability to maintain these lines.

- **Private and Commercial Development:** Protective management for suitable segments only applies to BLM managed lands. Private and commercial development is not a concern for river management on public lands. There are 843 acres (2.6 miles) of private land within the river area.

Resources and uses that would be enhanced or curtailed by designation:

- **Scenic** - Approximately 140 river miles provide outstanding scenery. Deep, narrow canyons, colorful rock walls, numerous interesting geologic features, and waterfalls provide exceptional opportunities for sightseeing and photography. During a BLM visual resources inventory, the river corridors were determined to have scenic quality A. This indicates that scenic qualities of the landforms, vegetation, and waterform are extremely high ,with great variety and distinction. Designation would ensure that the scenic values of this river system would not be impaired by additional water diversions or dams.

- **Recreational** - The Escalante River and major tributaries provide outstanding opportunities for hiking, backpacking, photography, and nature viewing. The canyons and colorful sandstone outcrops, known as slickrock, attract visitors from throughout the United States and other countries. Canyons of the Escalante and its tributaries are well known for canyoneering (seeking out and hiking narrow slot canyons). Designation could improve the ability to manage recreational uses and values through the increased focus that a WSR management plan would provide.
- **Geological** - The Colorado Plateau is a region of generally horizontal geologic strata where plateaus and mesas are separated by deep canyons. The meandering Escalante River has become deeply incised or entrenched into the Jurassic Navajo Sandstone in some places. Small side canyons within the 1/4 mile boundary to segments such as Little Death Hollow or the Escalante River are called slot canyons. Colorful canyon walls composed of layers of sandstone, siltstone, and limestone record times in the geologic past of extensive sand dunes, invasions by seaways, and deposits made by broad river systems. Tens of thousands of years of weathering and erosion have resulted in the forming of natural bridges and arches, water carved alcoves, rincons, and oxbows throughout the river area. Designation would ensure that our knowledge would be enhanced by providing an additional reason for scientific study.

- **Wildlife and Riparian Habitat** - The river and tributaries provide riparian corridors through an otherwise semi-arid region that support a wide variety of wildlife. As typical of wetland areas, the diversity of plants and wildlife around the washes and streams is greater than in the surrounding uplands. Various wildlife species rely upon the outstandingly remarkable riparian and wildlife habitat values of the river area for food, water and other requirements. The Escalante river supports a variety of fish species. Special status wildlife species include bald eagles, southwestern willow flycatcher, Mexican spotted owl and peregrine falcons. The riparian area is potential habitat for spotted bat, Townsend's big-eared bat, and golden eagle. Canyons of the Escalante could provide habitat for the recently reintroduced California condor. Other wildlife include bighorn sheep, mule deer, raccoons, bats, reptiles, amphibians, waterfowl, raptors, neotropical species, and other birds. WSR designation would ensure that habitat for these species would continue to be protected and would provide an additional reason to conduct scientific studies.

- **Vegetative Composition Varies Greatly Depending on the Zone:** Riparian communities associated with the river are composed largely of tamarisk stands with narrow corridors of native willows, ash, bulrushes, cattails, and cottonwoods. Mature cottonwood and willow galleries occur along the Escalante, and at scattered springs in tributaries. Stretches that receive disruptive, scouring floods on a regular basis may remain in a disclimax successional stage. Other vegetation includes rushes, sedges, and a variety of grasses and forbs. Algal mats are found in some quiet pools. Upland vegetation is described as a mixture of desert shrub, sagebrush, piñon and juniper, grasslands, mountain shrub, and coniferous woodlands. The distribution of these associations is determined largely by elevation and precipitation.

  The Wild and Scenic Rivers Act states "...selected rivers of the Nation which, with their immediate environments, ...shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected ...". There is a chance that without WSR designation, rivers could be dammed or diverted upstream, jeopardizing the instream flow in downstream segments. Therefore, designation could protect the viability of riparian communities by protecting the instream flow upon which these "immediate environments" rely.

- **Cultural Resources** - There is evidence to suggest that cultural properties and features representing the entire time span of human occupation of the region are present along or immediately adjacent to the study area. This should not be surprising since water is a limiting factor to all human activity. The probable span of use of the riverine habitat covers from about 11,000 years before present to the most recent activities of our own time. Numerous prehistoric sites can be attributed to several Native American Indian cultures: Anasazi and Fremont, Hopi, Zuni, Paiute, and possibly Navajo. The riverine system continues to be important to modern societies. Cultural properties likely to be encountered along the river could include rock art sites, agricultural features, storage cists, rock shelters, habitations, artifact scatters, and pioneer-era homesteads, ranches, and travel routes. These cultural properties exhibit a challenge in balancing conservation and utilization, but also offer great opportunities for scientific study, education, and interpretation. WSR designation would enhance the BLM's ability to further study these cultural resources and may help prioritize research projects in these segments.

- **Wilderness Study Areas** - 82 percent of the Escalante River and major tributaries run through Wilderness Study Areas (WSA) or Instant Study Areas (ISA). The river and/or tributaries flow through Phipps-Death Hollow ISA Complex, North Escalante Canyons/The Gulch ISA Complex, Escalante Canyons Tract 5 ISA Complex, Steep Creek WSA, and Scorpion WSA. There are no designated wilderness areas in the study area. WSR designation would complement the BLM's management of the WSAs if classified as wild.

- **Streamflow and Water Quality** - The Escalante River and tributaries meet the definition of free-flowing. A mean flow of 11.4 cfs is recorded at the USGS gauging station located at the Escalante River/Pine Creek confluence and 22.5 cfs are recorded in Boulder Creek above the Escalante River. Data was collected from 1950-1955 which showed a mean flow of 82.2 cfs at the mouth. High flows typically occur during the spring runoff period and as a result of summer thundershowers. Scouring of the river beds as a result of high flows can affect channel morphology and riparian ecosystems.

  Utah Division of Water Quality has classified the Escalante River and tributaries from Lake Powell to the confluence with Boulder Creek as 2B, protected for secondary contact recreation (boating, wading), and 3C, protected for non-game fish and other aquatic life. The Escalante River and tributaries from the confluence of Boulder Creek to the headwaters and Deer Creek and tributaries, from confluence with Boulder Creek to headwaters are classified as 2B, protected for secondary contact recreation (boating, wading), 3A, protected for cold water fish and other cold-water aquatic life, and 4, protected for agricultural use.

  The Utah Division of Water Quality defines anti-degradation segments as high quality waters with exceptional recreational or ecological significance or waters that require protection and are to be maintained at their existing quality. New point sources are prohibited and non-point sources shall be controlled to the extent feasible through best management practices. Calf Creek, Sand Creek, Mamie Creek, and Deer Creek are anti-degradation stream segments in the Monument. WSR designation would further protect streamflow and water quality.

Designation would not significantly restrict, foreclose, or curtail any activities currently occurring or proposed within the Escalante River System.

Federal, Public, State, Tribal, Local, or Other Interests

Garfield County was primarily concerned about the effect that WSR designation would have on their proposal for Wide Hollow reservoir, which is located above the suitable WSR segments. The existing reservoir currently holds about 1,100 acre feet although it originally held 2,450 acre feet when it was built in 1956. The county is proposing a new location for the reservoir because the existing location has filled with sediments. The proposed reservoir would be located on BLM land outside of the Monument boundary. At the time that this document went to print, there was no

BLANK PAGE

detailed proposal for the project. Subsequent environmental analysis would be required on any specific reservoir proposal to determine the potential impacts, including impacts on Monument resources downstream. WSR designation may affect this project, depending upon impacts to outstandingly remarkable values, although additional environmental review would be needed to assess impacts and the ability to mitigate such impacts.

Garfield County is also concerned that the segments immediately downstream from Hole-in-the-Rock Road would curtail the ability to improve that road. The upper part of Harris Wash, which is adjacent to the road, is considered non-suitable for this Plan.

Another concern expressed by Garfield County was for private landowners. It was suggested that the BLM exclude those river segments from being suitable. Private landowners have 0.9 acres along the Escalante River upstream and downstream of the Highway 12 bridge and 1.7 miles along Deer Creek upstream of the Burr Trail. Under the WSR Act, designation neither gives nor implies government control of private lands within the river corridor. Although Congress (or the Secretary of the Interior for 2(a)(ii) rivers) could include private lands within the boundaries of the designated river area, management restrictions would not apply.

Escalante and Boulder are the only communities within the river area. It is anticipated that these communities would be most affected by possible designation of the river. Much of the economy of Escalante is dependant on agriculture and the scarce water supplies available. The viability of Escalante is dependant of the continuation of existing water diversions (Franson and Noble). These diversions are upstream from the river study area.

Native American Indian tribes are concerned about rock art in the canyons. WSR designation could contribute to the protection of the rock art and surrounding area.

Ability to Manage

The Escalante River system is considered to be manageable based on the current level and type of activities taking place, and adequate staff and funding is available to carry out management of a designated WSR. The free-flowing character and outstandingly remarkable values identified in the determination of eligibility can be protected through management actions. If the river segments are designated, a management plan would be developed within three years pursuant to the WSR Act. This would be done in order to determine management objectives and strategy for long-term protection of the river's outstandingly remarkable values to the full extent of the WSR Act.

About 87 percent of the river segments are on public land. River protection measures are being applied in environmental assessments of proposed projects and considered in all land use and activity plans.

All river segments are within GSENM or on BLM lands directly south of the Monument. Almost half of the river mileage is in Outstanding Natural Areas (ONA) which became ISAs in the wilderness study process. These other administrative designations, including wilderness study areas, would complement WSR designation and provide specific authority and guidance for the BLM to protect and manage the rivers.

Historical or Existing Rights That Could be Adversely Affected by Designation

No impact on existing or historical rights would occur as a result of designation, although there is a perception that existing water rights could be adversely affected. Section 13 (b) of the Act states that jurisdiction over waters is determined by established principles of law. Existing, valid water rights are not affected by designation.

Alterations to existing irrigation or water withdrawal facilities may be approved under Section 7 of the Act as long as there is no direct adverse effect to the values for which the river was designated. The valid and existing rights of present land owners to use water and shorelines are not affected.

Estimated Cost

No additional easements or land acquisitions are anticipated as a result of NWSRS designation. Section 6(b) of the National WSR Act specifically prohibits the use of condemnation for fee title purchase of lands if 50 percent or more of the acreage within the river area boundary is in public ownership (Federal, state or local government). This is the case with both the Escalante and Paria River Systems. It is estimated that an additional $70,000 or 1 FTE would be needed to develop, implement, and maintain actions identified in the river plans.

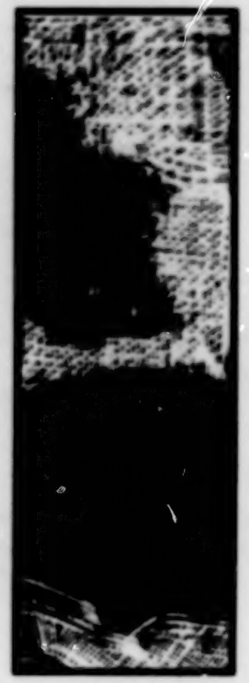


Table A11.1
Escalante River System Suitable Segments

Segment	Segment Description	Length (Nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Escalante River-1	Confluence with Pine Creek (T35S, R3E, S9) to Highway 12 (T35S, R4E, S12)	13.8	Wild	• High scenic quality, high recreational use, numerous geologic features, important fish and wildlife habitat, prehistoric sites, historic homestead and roads, riparian area, fossil tracks, petrified wood make this a worthy addition to the NWSRS.	• 2 powerlines, 1 pipeline, and 1 telephone line cross the Escalante River and Calf Creek near their confluence, T35S, R4E, S12. There is also a ROW for State Route 12 near Escalante River and Calf Creek confluence.		• Garfield County is concerned about their ability to replace Wide Hollow Reservoir upstream of this segment.
Escalante River-2	Highway 12 to east side of private land (T35S, R4E, S13)	1.1	Recreational				
Escalante River-3	Private land to boundary (T36S, R6E, S4)	19.2	Wild				
Harris Wash	T36S, R5E, S35 to Monument boundary (T36S, R5E, S36)	1.2	Wild	• High quality scenery, recreational attraction, southwestern willow flycatcher habitat, historic road, prehistoric sites, scientific study opportunities are the characteristics that make the lower section a worthy addition to the NWSRS.			• 1 mile Federal public water reserve. Garfield County concerned that WSR designation would curtail improving Hole-in-the-Rock Road.
Lower Boulder Creek	Downstream side of state section (T34S, R4E, S11) to Escalante River (T35S, R5E, S22)	13.6	Wild	• High quality scenery, high recreational use, part of the Escalante Canyons ONA and prehistoric sites.	• 0.5 miles runs through private ownership. • A pipeline ROW exists along the north end T34S, R4E, S11 &12	• Fisheries could be enhanced with designation	
Slickrock Canyon	Monument boundary (T33S, R5E, S22) to Deer Creek (T33S, R5E, S33)	2.8	Wild	• High quality scenery, recreational values, prehistoric sites, and riparian areas make this a worthy addition to the NWSRS.			

BEST COPY AVAILABLE

384

Table AI1.1
Escalante River System Suitable Segments

Segment	Segment Description	Length (nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Lower Deer Creek-1	Slickrock Canyon (T33S, R5E, S 33) to Burr Trail Road (T34S, R5E, S16)	3.8	Recreational	• High quality scenery, Deer Creek Recreation Area, Escalante Canyons ONA, southwestern willow flycatchers, prehistoric sites, threatened plant, and riparian area.	• 1.7 miles of the section of Deer Creek between Slickrock and the Burr Trail is on private land. Irrigation pipeline and ROW for maintenance of water system on part of pubic land, water right to approx 1.5 cfs for irrigation and non-consumptive use through this section. This is not a significant diversion for this stream.	• Fisheries could be enhanced with designation. A Federally threatened species, the Ute-ladies' tresses orchid, is found in the Deer Creek drainage and could be further protected by WSR designation.	• Part of this segment is in the Escalante Canyons ONA.
Lower Deer Creek-2	Burr Trail Road to Lower Boulder Creek (T35S, R5E, S9)	7.0	Wild				
The Gulch-1	Monument boundary (T32S, R6E, S32)to Burr Trail Road (T34S, R5E, S13)	11.0	Wild	• High quality scenery, outstanding recreation, natural arch, peregrine habitat, Traditional Cultural Property, riparian area and petrified wood			• ONA
The Gulch-2	Along Burr Trail Road to T34S, R5E, S13)	0.6	Recreational				
The Gulch-3	Below Burr Trail Road to Escalante River (T35S, R5E, S36)	13.0	Wild				
Steep Creek	Monument boundary (T33S, R5E, S24) to The Gulch (T34S, R5E, S12)	8.9	Wild	• High quality scenery, recreational values, and riparian areas.			

Table A11.1
Escalante River System Suitable Segments

Segment	Segment Description	Length (Nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Lower Sand Creek and tributary Willow Patch Creek	Sweetwater Creek (T34S, R4E, S8) to Escalante River (T35S, R4E, S10)	13.2	Wild	• High scenic quality, part of an ONA, fish habitat, southwestern willow flycatcher habitat, historic trail, and riparian area.	• A utility line crosses the north end of Lower Sand Creek, T34S, R4W, S8.		
Mamie Creek and west tributary	Monument Boundary (T34S, R3E, S16) to Escalante River (T35S, R4E, S7)	9.2	Wild	• High scenic quality, part of an ONA, high recreational use, natural bridge, fish and wildlife habitat, prehistoric and historic sites including an historic mail trail, and riparian area.			• Part of Phipps Death Hollow ONA.
Death Hollow Creek	Monument boundary (T34S, R3E, S3) to Mamie Creek (T34S, R3E, S36)	9.9	Wild	• High scenic quality, part of an ONA, southwestern willow flycatcher habitat, prehistoric sites, dinosaur tracks, and riparian area.			• This segment is in the North Escalante Canyons ONA.
Calf Creek-1	Headwaters (T34S, R4E, S10) to Lower Calf Creek Falls (T34S, R4E, S24)	3.5	Wild	• High scenic quality, Calf Creek Recreation Area, bird habitat, prehistoric site, and riparian area	• Public campground, diversion on lower end. 2 powerlines, 1 pipeline, and 1 telephone line cross the Escalante River and Calf Creek near their confluence, T35S, R4E, S12. There is also a ROW for State Route 12 near Escalante River and Calf Creek confluence.	• Recreation could be enhanced	• This segment is in an ONA and Recreation Area
Calf Creek-2	Lower Falls to Calf Creek Recreation Site (T35S, R4E, S1)	3	Scenic				
Calf Creek-3	Recreation Site to Escalante River (T35S, R4E, S12)	1.5	Recreational				

BEST COPY AVAILABLE

386

Table A11.1
Escalante River System Suitable Segments

Segment	Segment Description	Length (Nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Twenty-five Mile Wash	T37S, R6E, S2 to Monument boundary (T37S, R6E, S25), does not include unnamed tributary on north side	6.8	Wild	• High scenic quality, high recreation use, bird habitat, rock art, prehistoric structures, and riparian			• ONA

Note: Short segments of Scorpion Gulch, Fools Canyon, Coyote Gulch and Willow Gulch may be on Monument lands. These segments will be managed and suitability recommendations made with the remainder of the named segments by Glen Canyon National Recreation Area.

Table A11.2
Escalante River System Segments Determined Non-Suitable

Segment	Segment Description	Length (Nearest 0.1 mile)	Characteristics which do or do not make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Harris Wash	Tenmile Crossing (T365S, R4E, S17) to west side State section (T36S, R5E, S36)	14.4	• This upper section was found non-suitable because the values identified, with the exception of the historic road, apply primarily to the lower section and the portion that flows through the National Recreation Area • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			• 1 mile Federal public water reserve • Garfield County concerned that WSR designation would curtail improving Hole-in-the-Rock Road
Dry Hollow Creek	Monument boundary (T34S, R4E, S3) to Lower Boulder Creek (T34S, R5E, S30)	4.3	• High quality scenery • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			

387

Table A11.2
Escalante River System Segments Determined Non-Suitable

Segment	Segment Description	Length (Nearest 0.1 mile)	Characteristics which do or do not make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Cottonwood Canyon	Monument boundary (T33S, R5E, S22) to Lower Deer Creek (T34S, R5E, S4)	4.4	• High quality scenery, high recreational attraction, cultural sites • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			
Blackwater Canyon	Entire (T34N, R5E, S23)	0.6	• High quality scenery, outstanding recreation, natural arch, peregrine habitat, Traditional Cultural Property, riparian area, petrified wood. • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS	• These are short, side tributaries to the Gulch whose outstandingly remarkable values are scenery, and a natural arch. Although they are beautiful canyons, they contribute little to the riverine values of the Escalante River system. They are not in and of themselves worthy additions to a national river system.		
Lamanite Arch Canyon	Monument boundary (T32S, R6E, S31) to The Gulch (T33S, R6E, S8)	2.4				
Water Canyon	Headwaters (T33S, R6E, S7) to Forest Service boundary (T32S, R5E, S13); Forest Service boundary to The Gulch (T33S, R6E, S30)	3.5	• High quality scenery, outstanding recreation, natural arch, peregrine habitat, Traditional Cultural Property, riparian area, petrified wood. • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			
Lower Horse Canyon	T35S, R6E, S29 to Escalante River (T35S, R6E, S32)	3	• High quality scenery, ONA, high recreational use, international use, paleontology.	• There is a diversion pipe at the top of this section, and although it is not currently being used, it could be used in the future to remove livestock from riparian areas.		• ONA

Table A11.2
Escalante River System Segments Determined Non-Suitable

Segment	Segment Description	Length (Nearest 0.1 mile)	Characteristics which do or do not make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Wolverine Creek	Entire (T34S, R7E, S20) to (T35S, R6E, S16)	9.7	• Scenery was the only outstandingly remarkable value identified for this segment. • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			
Little Death Hollow	Entire (T34S, R7E, S28) to (T35S, R6E, S28)	14.8	• Scenery was the only outstandingly remarkable value identified for this segment. • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			
Phipps Wash and tributaries	Headwaters (T35S, R4E, S22) to Escalante River (T35S, R5E, S18)	6	• Scenery and recreation were the outstandingly remarkable values identified for this segment. • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			
Unnamed tributary west of Calf Creek	Headwaters (T[illegible]S, R4E, S3[illegible]) to Escalante River (T35S, R4E, S11)	2.6	• High quality scenery, recreational attraction, geologic features, cultural sites. • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS.			

BEST COPY AVAILABLE

Paria River System

The Paria River System begins on the Paunsaugunt Plateau near Bryce Canyon. The river system flows through the White Cliffs and the Vermilion Cliffs, and carves its way through the Paria Canyon/Vermilion Cliffs Wilderness Area to the Colorado River. The Paria River and tributaries are in the Colorado Plateau Physiographic Province and in the Canyonlands and High Plateaus subprovinces. Dominant vegetation zones change with elevation and precipitation levels. These zones start in lower elevations with shadscale, then blend with sagebrush, and eventually piñon and juniper zones. Headwaters of some tributaries are in the Montane Zone. The Paria is a significant tributary in the Colorado River Basin and joins the Colorado at Lees Ferry in Arizona. It flows through the Plateau Uplands water province.

The headwaters of the Paria River are composed of several tributaries in Dixie National Forest and Bryce Canyon National Park. From there, the Paria flows through the BLM managed GSENM and then leaves the study area at the Arizona State line. The Paria River System studied in this document covers 117 river miles, of which 111 miles (86 percent) are on public lands managed by the BLM. This suitability assessment covers the river and major tributaries within the boundaries of the Monument, as well as designated BLM wilderness outside the Monument boundaries.

As prescribed in the Wild and Scenic River (WSR) Act and by BLM policy, the area included in this evaluation is the river area and its adjoining tributaries within the river corridor. Generally, the corridor width cannot exceed an average of 320 acres per mile, which is usually measured approximately 1/4 mile from the mean high-water mark on both sides of the channel. Few designated WSRs have a boundary that is exactly one-quarter of a mile from the ordinary high water mark along their entire length. Corridor boundaries for Federally designated and administered WSRs may vary based on a number of conditions, but are usually delineated by legally identifiable lines (survey or property lines). They can also be delineated by some form of on-the-ground physical features (i.e., topography, natural or man-made features such as canyon rims, roads, etc.), which provide the basis for protecting the river's identified values and practicality in managing those values.

Suitability Recommendations for the Proposed Plan

106 miles of the Paria River System would be considered suitable for inclusion into the National Wild and Scenic Rivers System (NWSRS).

The Paria River and selected tributaries would be worthy additions to the WSR system because they contain outstandingly remarkable river values that require special protective measures. These values are scenic, recreational, wildlife, geological, historic, and riparian. Unique natural and human resources would benefit from the protection and enhancement afforded by NWSR designation.

Bull Valley Gorge is considered non-suitable for inclusion in the NWSRS. The rationale for dropping this 5.9 mile segment is that, while this segment has outstandingly remarkable values, the watershed for this tributary is small and the outstandingly remarkable values are derived from its geology rather than being a riverine system. The recreation interest lies in the tributary as a slot canyon. The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS.

Threats to the Paria River or tributaries within the study area could come from diverting or impounding water for use or modifying stream channels. However, there are no major developments or actions being proposed that would significantly alter the river system's values.

The following factors were analyzed generally for the Paria River System as a whole. Additional specific facts and concerns are addressed in Tables A11.3 and A11.4.

Characteristics Which do or do not Make the Area a Worthy Addition to NWSRS

The segments identified in this report are in the Colorado Plateau Physiographic Province, Canyonlands and High Plateaus subprovinces. Currently, there are no designated components of the NWSRS within this province. The Nationwide Rivers Inventory identified the Paria River from the Colorado River to its source as possessing values of national significance as identified by the National Park Service (NPS) (NPS, 1982, 1986, 1988). The Paria was listed as an object of historic or scientific interest when the Monument was designated.

The adjacent Arizona Strip District identified the segment of the Paria River within designated wilderness (in Utah) and it was determined suitable. This determination (although in the administrative record) was not included in the Arizona statewide WSR review in 1994 - 1996.

The Paria River, Hackberry Creek and Bull Valley Gorge were nominated as eligible rivers in *A Citizen's Proposal to Protect the Wild Rivers of Utah*.

The Paria River system would be a worthy addition to the NWSRS based on the following outstandingly remarkable values:

- **Scenic** - Throughout the spectacular Paria River Gorge, rugged canyons, colorful outcroppings and imposing cliff faces provide unique opportunities for sightseeing and photography.
- **Recreational** - The Paria River and major tributaries provide outstanding opportunities for hiking, backpacking, photography, and nature viewing. The canyons and colorful sandstone outcroppings, known as slickrock, attract visitors from throughout the United States and other countries.
- **Geologic** - The Paria River cuts through strata of successively older rocks ranging in age from Cretaceous through Permian, a time span of more than 150 million years, as it descends toward the Colorado River.
- **Riparian** - The river provides a unique riparian corridor through an otherwise arid region. This corridor provides habitat for 329 species of wildlife: 7 amphibians, 242 birds, 59 mammals and 21 reptiles. Among these are the threatened and endangered southwestern willow flycatcher, peregrine falcon, Mexican spotted owl, and wintering bald eagles.

There are documented nests in the riparian vegetation along the banks of the Paria. This is also important historic habitat for the population of reintroduced bighorn sheep.

- **Historic** - The Paria River system has provided water for humans in a relatively arid environment for at least 10,000 years. Prehistoric Native American Indian sites are prolific throughout the system. The river system continues to provide water for humans today.

Current Uses and Land Ownership Concerns

- **Energy and Minerals:** An existing oil and gas lease is within the river area on the north end of Hackberry Creek. There are no oil or gas wells within the river area. There are no mining claims. All Federal lands in the Monument are withdrawn from new mineral entry. Existing valid claims or leases within the river boundary remain in effect, and activities may be allowed, subject to regulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

- **Water Resource Developments, Water Rights and Instream Flow:** Existing water developments and rights within the river area are associated with livestock, agricultural, and domestic use. Sixty four surface, 6 underground, and 7 spring water rights within the river corridor are on record with the State of Utah. Of these, the BLM holds the rights to 31 surface, 2 underground, and 7 springs. Utah Division of Water Resources reports a total of 3.14 cfs surface diversions in Buckskin Gulch, Hackberry Creek, Hogeye Creek, Lower Paria River, and the Upper Paria River. Three of these cfs are held by private landowners primarily on the upper Paria, with some on the lower Paria. Existing, valid water rights would not be affected by designation. Future water developments on or above public land segments would be subject to environmental analysis where Federal permits, approval, or funding would be involved.

  There is some concern from Kane County Water Conservancy Districts and potential users over the possible effects designation could have on proposed or potential projects. This concern should be addressed by Congress upon WSR designation. No action taken in this plan or WSR recommendation can establish an appropriation or Federal reserved water right. A Congressional Act designating a WSR may or may not establish a federal reserved water right. If Congress creates a reserved right, the BLM or the State of Utah may establish instream flows necessary to meet the purposes of the designation. The nature of such a condition would depend on the wording in the Act. Protective management for suitability could affect specific proposals if the BLM would have to issue a right-of-way across BLM managed lands. At this time, there are no project proposals on suitable river segments.

- **Forestry, Agriculture and Livestock Grazing:** There are no forested lands within the study area. Agriculture, in the form of irrigated farmlands, occurs near the communities of Tropic, Cannonville, and Adairville. These areas of agricultural use are not within the study area. However, the farming has an impact on the river study area. Water is diverted out of the channels to irrigate the farmland and the runoff returns to the river bed. When this water returns, it can be carrying remnants of chemicals used to spray the fields.

  Livestock grazing is permitted on public lands throughout the river area. The Paria and tributaries flow through seven allotments and serve as boundaries for others. The Paria flows through Bunting Well, Cottonwood, and Headwaters Allotments. Grazing along the river and on the uplands is primarily a fall/winter/spring operation. The river is the major source of water in this area for livestock. Grazing would continue to be governed by applicable laws and regulations.

  Six fences cross the Paria within the corridor. These include allotment boundary fences, pasture fences, and state section line fences. If not removed after use, these wire fences typically wash out or are taken up during high flows, but are rebuilt each year as flows recede or grazing operations start up. Landowners are concerned that they will not be able to maintain these fences with designation. WSR designation would not affect the ability of landowners or ranchers to maintain fences.

- **Recreational Use and Facilities:** Corridors of the Paria River and tributaries provide outstanding opportunities for recreational activities. These include hiking (canyoneering), backpacking, bird-watching, photography, camping, and nature study. Recreational use is estimated to be about 7,200 visits per year (based on 1997 RMIS data).

  The BLM has developed trailheads at Whitehouse, Buckskin Gulch, and Wire Pass. These sites receive most of the Paria visitors (6,986 in FY 1997). Access for hiking and river-based activities is available at these trailheads. A visitor contact station and developed campground are located near the Whitehouse trailhead. The old Pahreah townsite and Paria Movie Set are located near the river corridor north of Highway 89.

- **Transportation/Utility Facilities:** U.S. Highway 89 travels over the river at the lower end of the Upper Paria. Outside of the Wilderness area, dirt roads approach the water's edge, and in some places, ford the river. An historic travel route goes along the Upper Paria river channel, in and out of the river. Power transmission lines cross over the river at three places between the Pahreah townsite and Highway 89, and two others cross the Paria at the Wilderness boundary. WSR designation would not affect the ability to maintain these lines.

- **Private and Commercial Development:** All major visitor facilities and developments would be outside the Monument boundaries. There are 1,152 acres (5 miles) of private land within the river area. Development on these parcels is not a concern for river management.

- **Rights-of-Way, Leases or Traditional Uses:** Three rights-of-way (ROW) fall within the Paria River study area. They are for utility lines at T41S, R1W, S29 and 32; T42S, R1W, S16; and T43S, R1W, S 23.

Resources and Uses that Would be Enhanced or Curtailed by Designation

- **Scenic** - The inventory indicates that 85 river miles possess outstanding scenic values. Deep, narrow canyons and colorful rock walls provide exceptional opportunities for sightseeing and photography. During a BLM visual resources inventory, the river corridors were determined to have scenic quality A. This indicates that scenic qualities of the landforms, vegetation, and water form are extremely high, with great variety and distinction. Designation would ensure that the scenic values of this river system would not be impaired by additional water diversions or dams.

- **Recreation** - The Paria River and major tributaries provide outstanding opportunities for hiking, backpacking, photography, and nature viewing. The canyons and colorful sandstone outcrops, known as slickrock, attract visitors from throughout the United States and other countries. Thousands of hikers and backpackers a year visit the river as it flows through the Paria Canyon/Vermilion Cliffs Wilderness Area. Outside the Wilderness area, visitor use is quite low and dispersed. Designation would enhance the recreation values for this river system through the increased focus that a WSR management plan would provide.

  The Paria River Corridor is also accessed by motorized users. This use would be curtailed for the entire river corridor by the Monument Plan zone prescriptions. WSR classifications support the zone prescriptions.

- **Geological** - The Colorado Plateau is a region of generally horizontal geologic strata where plateaus and mesas are separated by deep canyons. The Paria River cuts through strata of successively older rocks ranging in age from Cretaceous through Permian, a time span of more than 150 million years, as it descends toward the Colorado River near Lee's Ferry. The upper tributaries of the Paria include slot canyons, so defined because they are very deep with extremely narrow walls, are incised mostly into the Jurassic Navajo Sandstone. Southern portions of the Paria River and tributaries such as Buckskin Gulch, also form slot canyons. Kaibab Gulch, the upper reaches of Buckskin Gulch, is the stratigraphic type section for the Permian Kaibab Formation. Designation would help prioritize research projects and ensure that knowledge would be enhanced by providing an additional reason for scientific study.

- **Riparian and Wildlife Habitat** - The river and tributaries provide riparian corridors through an otherwise semi-arid region that support a wide variety of wildlife. As typical of wetland areas, the diversity of plants and wildlife around the washes and streams is greater than in the surrounding uplands. Various wildlife species rely upon the river area for consumptive use and other requirements. Special status wildlife species include bald eagles, southwestern willow flycatcher, Mexican spotted owl, and peregrine falcons. The riparian area is potential habitat for the recently reintroduced California condor. Other wildlife include bighorn sheep, mule deer, raccoons, bats, reptiles, amphibians, waterfowl, raptors and other birds. WSR designation would contribute to the protection of habitat for these species and would provide an additional reason to conduct scientific studies.

- **Vegetative Composition Varies Depending on the Zone:** Riparian and Upland Riparian communities associated with the river consist of native willows, cottonwoods, bulrushes, cattails, and non-native tamarisk. Stretches that receive disruptive, scouring floods on a regular basis remain in a disclimax successional stage. Other vegetation includes rushes, sedges, and a variety of grasses and forbs. Algal mats are found in some quiet pools. Upland vegetation is described as a mixture of desert shrub, sagebrush, piñon and juniper, grasslands, mountain shrub and coniferous woodlands. The distribution of these associations is determined largely by elevation and precipitation.

  The Wild and Scenic Rivers Act states "...selected rivers of the Nation which, with their immediate environments, ...shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected ...". There is a chance that without WSR designation, rivers could be dammed or diverted upstream, jeopardizing the instream flow in downstream segments. Therefore, designation could protect the viability of riparian communities by protecting the instream flow upon which these "immediate environments" rely.

- **Cultural (Prehistoric and Historic) Resources** - There is evidence to suggest that cultural properties and features representing the entire time span of human occupation of the region are present along or immediately adjacent to the Paria River. This should not be surprising since water is a limiting factor to all human activity. The probable span of use of the riverine habitat covers from about 11,000 years before present to the most recent activities of our own time. Numerous prehistoric sites can be attributed to several Native American cultures: Anasazi and Fremont, Hopi, Zuni, Paiute, and possibly Navajo. The river system continues to be important to modern societies. Cultural properties likely to be encountered along the river include rock art sites, agricultural features, storage cists, rock shelters, habitations, artifact scatters and pioneer-era homesteads, ranches, and travel routes. These cultural properties exhibit a challenge in balancing conservation and utilization, but also offer great opportunities for scientific study, public education and interpretation.

- **Wilderness and Wilderness Study Areas** - 75 percent of the Paria River and tributaries run through Wilderness Study Areas (WSA) and a designated Wilderness areas. The river and tributaries flow through the Paria-Hackberry WSA and The Cockscomb WSA. Lower Paria River-2 segment and the entire eligible segments of Buckskin Gulch and Wire Pass are within the Paria Canyon/Vermillion Cliffs Wilderness Area (23 miles or 19 percent). WSR designation would complement the BLM's management of Wilderness and WSAs.

- **Streamflow and Water Quality** - The Paria River and tributaries are free-flowing streams, although intermittent. A mean flow of 9.08 cfs is recorded by USGS south of the town of Tropic. High flows typically occur during the spring runoff period and as a result of summer thundershowers. Frequent scouring of the river as a result of high flows constantly affects channel morphology and the stage of riparian ecosystems.

Utah Division of Water Quality has classified the Paria River and tributaries from the State line to headwaters as 2B, protected for secondary contact recreation (boating, wading), 3A, protected for cold water fish and other cold-water aquatic life, and 4, protected for agricultural use.

The Paria generally is turbid and saline. The water appears turbid for most of the year to the degree that the substrate is not visible. Dissolved salt and sediment loads are high, reducing the feasibility and success of impoundments on the river. There is heavy algal growth in pools during periods of low water. River designation would further protect streamflow.

Federal, Public, State, Tribal, Local, or Other Interests

Kane County Water Conservancy District does not support WSR designation for the Paria River System. They are specifically concerned about being able to maintain the powerlines on the lower portion of the Paria River and upgrading the crossing on Skutumpah road over Bull Valley Gorge. However, WSR designation may or may not affect the county's ability to improve the crossing over the canyon, dependent on an individual site specific assessment of impacts. This is not a concern for this Plan, as Bull Valley Gorge is not considered suitable. Powerlines would be able to be maintained although upgrades would be evaluated in light of impacts to river values.

Kane County Water Conservancy District also expressed concern for the private property owners near Highway 89. They feel that those private property owners will not be able to use their water rights if designation occurs. They are also concerned that ranchers will not be able to repair and build fences in the river corridor. Under the WSR Act, designation neither gives nor implies government control of private lands within the river corridor. Although Congress (or the Secretary of the Interior for 2(a)(ii) rivers) could include private lands within the boundaries of the designated river area, management restrictions would not apply.

There was also concern that motorized users will not be able to access the Paria River Corridor as they have in the past. Motorized and mechanized use would be curtailed in this Plan.

Native American Indian tribes are concerned about rock art in the canyons. WSR designation could contribute to the protection of the rock art and surrounding area.

Ability to Manage

The Paria River study area is considered to be manageable based on the current level and type of activities taking place, and assuming that adequate staff and funding is available to carry out management of a designated WSR. Designation of the Paria River System would slightly raise the level of management needed above that being proposed in the Monument Plan. The free-flowing character and outstandingly remarkable values identified in the eligibility study can be protected through management actions. If the rivers are designated, a management plan would develop management objectives and a strategy for long-term protection of the river's outstandingly remarkable values to the full extent of the WSR Act.

Ninety-six percent of the segments are on public lands. Protective management has been in effect since eligibility was determined, as outlined in BLM Manual Section 8351. River protection is considered in environmental assessments of proposed projects and in all land use and activity plans.

Twenty percent of the river system is in a designated Wilderness area. The majority of the remainder is on public land is in WSAs. Dams could be constructed in wilderness but not on WSR. Overlapping designations complement WSR designation and provide additional authority, protection, and guidance for the BLM to manage the river if designated.

Historical or Existing Rights that Could be Adversely Affected by Designation

No impact on existing or historical rights would occur as a result of designation.

Estimated Cost

No additional easements or land acquisitions are anticipated as a result of NWSRS designation. Section 6(b) of the National WSR Act specifically prohibits the use of condemnation for fee title purchase of lands if 50 percent or more of the acreage within the river area boundary is in public ownership (Federal, state or local government). This is the case with both the Escalante and Paria River Systems. It is estimated that an additional $70,000 or 1 FTE would be needed to develop, implement, and maintain actions identified in the river plans.

Table A11.3
Paria River System Suitable Segments

Segment	Segment Description	Length (Nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Upper Paria River - 1	Little Dry Valley (T38S, R2W, S21) to T41S, R1W, S7	22.0	Wild	• High quality scenery, recreational attraction, exposed geologic strata and arches, and historic sites make this area a worthy addition.	• The Paria River runs through 3.1 miles of private lands in the Recreation segment. • The landowner in the lower segment periodically constructs a diversion utilizing their water rights. While this blocks the flow temporarily, the diversion is frequently washed out by high flows retaining the free-flowing character . • There is motorized use and commercial horseback rides in the river corridor. It is used as a livestock driveway and historic throughway.	• Motorized use would be curtailed if designated Wild • Enhance southwestern willow flycatcher habitat • Enhance deer population and all other wildlife if no OHV use allowed.	• Kane County Water Conservancy District is concerned that private property owners will be constrained from using their water rights or building fences. • They also are concerned that ranchers will not be able to drive their cattle down the Paria like they do now. • They are also concerned that the existing powerlines could not be maintained if designated.
Upper Paria River - 2	T41S, R1W, S7 to downstream side of private property south of Highway 89 (T42S, R1W, S28)	16.9	Recreational				
Lower Paria River - 1	Downstream side of private property (T43S, R1W, S10) to wilderness boundary (T43S, R1W, S23)	3.3	Recreational	• High quality scenery, wilderness area, high recreation use, narrow canyon, peregrine, and historic travelway make this a worthy addition.		• Habitat for peregrine and southwestern willow flycatcher would be enhanced	• 4.9 miles is in the designated Paria-Vermilion Cliffs Wilderness area outside GSENM boundaries
Lower Paria River - 2	Segment in wilderness (T43S, R1W, S23 to T44S, R1W, S12)	4.8	Wild				
Deer Creek Canyon	Headwaters (T40S, R3W, S1) to Paria River (T40S, R2W, S4)	5.1	Wild	• High quality scenery and recreation values make this a worthy addition.			

Table A11.3
Paria River System Suitable Segments

Segment	Segment Description	Length (Nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current use and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Snake Creek	Entire (T39S, R2W, S26 to T40S, R2W, S10)	4.7	Wild	• High quality scenery and recreation values make this a worthy addition.			
Hogeye Creek	Entire (T40S, R2W, S 1 to T40S, R2W, S26)	6.3	Wild	• High quality scenery and recreation values make this a worthy addition.			
Kitchen Canyon	T40S, R2W, S28 to Starlight Canyon (T40S, R2W, S34)	1.2	Wild	• High quality scenery makes this a worthy addition to the system.			
Starlight Canyon	Entire (T41S, R2W, S7 to T40S, R2W, S35)	4.9	Wild	• High quality scenery makes this a worthy addition to the system.			
Lower Sheep Creek	Bull Valley Gorge (T39S, R2W, S7) to Paria River (T39S, R2W, S17)	1.5	Wild	• High quality scenery, recreational values, a known spotted owl sighting make this a worthy addition to the NWSRS.	• Motorized use • Livestock driveway • Historic throughway	• Motorized use would be curtailed if classified Wild	
Hackberry Creek	Top (T38S, R1W, S29) to Cottonwood Creek	20.0	Wild	• Recreational and scenic values, spotted owls, and riparian area make this a worthy addition to the system.	• Limited OHV use at upper and lower ends.	• Motorized use would be curtailed if classified Wild.	

Table A11.3
Paria River System Suitable Segments

Segment	Segment Description	Length (Nearest 0.1 mile)	Tentative Classification	Characteristics which make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Lower Cottonwood Creek	Confluence with Hackberry Creek to Paria River	2.9	Recreational	• Recreational values and ecological continuity make this a worthy addition to the system.	• 1.3 miles run through private lands.		
Buckskin Gulch	Wilderness boundary (T43S, R2W, S15) to Paria River (T44S, R1W, S12)	18.0	Wild	• High quality scenery, high recreational use, slot canyons make this a worthy addition.	• There is a lone watering hole in this segment used for livestock. • Motorized vehicles are used to maintain range improvements.	• Spring and vegetation could be enhanced.	• These segments are in the designated Paria-Vermilion Cliffs Wilderness area outside GSENM boundaries.

Table A11.4
Paria River System Segment Determined Non-Suitable

Segment	Segment Description	Length (Nearest 0.1 mile)	Characteristics which do or do not make the area a worthy addition to NWSRS	Current uses and land ownership concerns	Resources and uses that would be enhanced or curtailed by designation	Federal, public, state, tribal, local, or other interests
Bull Valley Gorge	Little Bull Valley (T38S, R2W, S28) to Sheep Creek (T39S, R2W, S7)	3.9	• High quality scenery, recreational values related to slot canyons, Mexican spotted owls • The BLM felt that the quality of river characteristics in this segment would not significantly enhance nor contribute to the NWSRS			

Appendix 12

Economic Conditions

INTRODUCTION

The Southwest region includes five counties: Beaver, Garfield, Kane, Iron, and Washington. The region also encompasses the area covered by the Bureau of Land Management's (BLM) Cedar City District. These five counties are also included in the Five County Association of Governments and in the Southwest Multi-County District. The counties of the region are linked by common problems, resources, and opportunities. The people of the region are interdependent economically and socially, and the region forms a functional economy. The region has a closed labor market in the sense that about 90 percent of the income generated in the region is also received there, and, conversely, about 90 percent of the income received in the region is also generated there. For these reasons the impacts of the Proposed Management plan have been modeled at the regional level.

Grand Staircase-Escalante National Monument (GSENM) is located in both Garfield and Kane Counties and includes over 1.8 million acres. The population in both Kane and Garfield Counties can be characterized relative to the State as small, sparsely distributed, increasing slowly, and old. Approximately 10,500 people live in the area. Both counties have among the lowest population per square mile of any of the counties in Utah. The two largest towns in the area are Kanab, with approximately 3,600 people, and Panguitch, with approximately 1,400 people.

Population growth in the counties has generally been lower than the state average. In Garfield County, net out-migration has occurred in five of the past ten years. Kane County's population has been increasing at a faster rate than in Garfield County, and net out-migration has only occurred in two of the past ten years.

The populations in both counties are among the oldest in the State. For instance, the median age in Garfield County of 31.8 years is the sixth highest in the State, Kane County is eight highest, with a median age of 30.5.

These unique demographic characteristics are closely associated with the economic realities faced by both counties. The population is small because there are relatively few employment opportunities for local residents. The population is old and net out migration is common because many of those aging into the labor force have to leave to find work.

The performance of the economies in Kane and Garfield Counties can be characterized as cyclical and sluggish compared to the vibrant performance of the State's economy in recent years. Both counties struggle with unemployment rates higher than the state average, per capita personal income lower than the State average, and a lack of employment diversity. For instance, in Garfield County unemployment is currently the second highest in the State at 8.3 percent, and unemployment rates have been in the double digits in five of the past ten years. Per capita income in Garfield County is estimated to be $16,900, just 83 percent of the State average. Kane County is faring better, with an unemployment rate of 4.1 percent and per capita personal income of $19,900, close to the State average of $20,400.

Many of the economic problems in both counties can be explained by a general lack of diversity in the economic structure. The area relies heavily on the economic performance of just four major industries: agriculture, government, timber and tourism. The first three of these industries are fairly stagnant or declining. For example, while agriculture is an important economic resource to both counties, employment in agriculture has been stagnant and at times declining for many years. Employment in the timber industry has been cyclical and declining, as sawmills have downsized and closed. Employment in local, state, and Federal government has been increasing, but slowly. It is only in the tourism industry that employment growth has been sustained. In fact, the economies' dependence on the tourism industry has steadily increased.

Modeling the Impacts of the Proposed Management Plan

The impacts of the proposed management plan are driven by these factors: BLM spending and employment, and spending by visitors. The direct, indirect and induced effects of this spending and employment on population, employment, employee earnings, and local government revenues in the Southwest region are the focus of this analysis. Below is an illustration of the regional modeling framework used for the analysis.

Direct Spending

The base budget for the Monument was projected at approximately $3 million. Spending above that level is assumed to be new spending associated with the Proposed Management Plan. For 1998 that figure is $3.4 million. In 1999, $4.3 million is assumed. In the year 2000 spending of $11 million is assumed, about two-thirds of which will be spent on construction, furniture and/or exhibits. Afterwards (2001 to 2012), spending is assumed to be approximately $3.4 million.

Direct Employment

Employment remains constant for the years 1998 to 2012. Approximately 30 jobs are associated with the Proposed Management Plan.

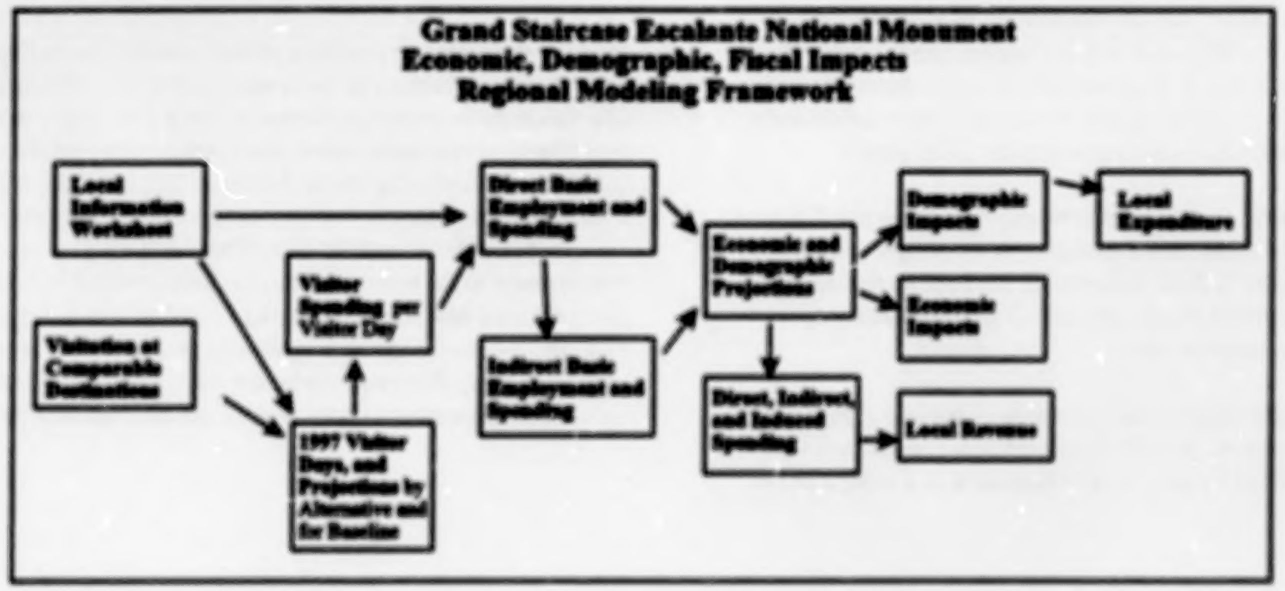
Visitors, Projections and Spending

Visitor Days

Visitor days were estimated using BLM data on visitor counts and activities. The information was compared to data collected at comparable destination in the Southwest region and at other national destinations.

Analysis of BLM Visitation Data for 1997 and 1996 Baseline

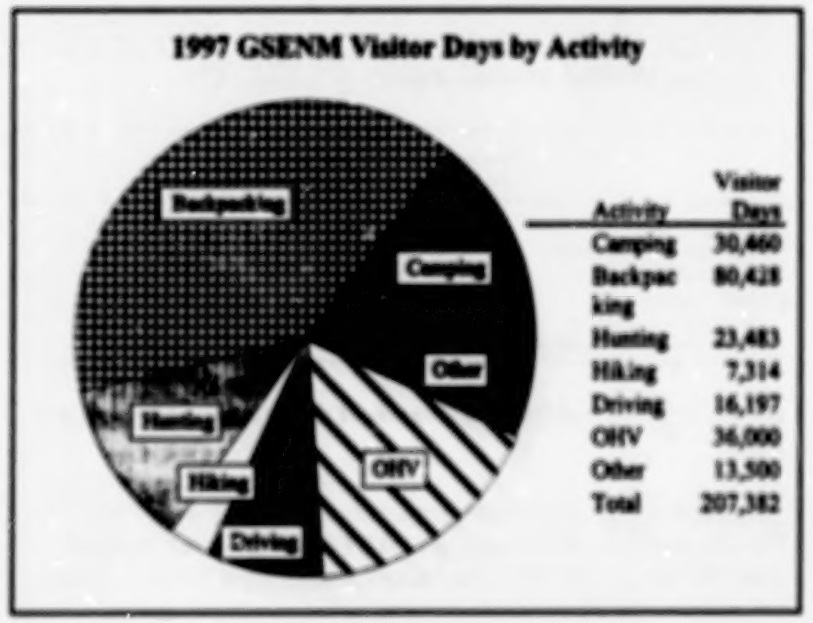
Although the methodology used by the National Park Service differs from the methodology to develop GSENM visitor days estimates,


Grand Staircase Escalante National Monument
Economic, Demographic, Fiscal Impacts
Regional Modeling Framework
Local Information Worksheet
Visitation at Comparable Destinations
Visitor Spending per Visitor Day
1997 Visitor Days, and Projections by Alternative and for Baseline
Direct Basic Employment and Spending
Indirect Basic Employment and Spending
Economic and Demographic Projections
Direct, Indirect, and Induced Spending
Demographic Impacts
Economic Impacts
Local Revenue
Local Expenditure

comparing the estimates offers a frame of reference. The 1997 estimated visitor days at GSENM are: more than twice the estimates for Capitol Reef; about half of visitor days at Canyonlands; two-thirds of visitor days at Arches; a quarter of visitor days at Bryce Canyon; and 15 percent of visitor days at Zion National Park.

Visitors to GSENM participate in a broad range of activities. BLM records indicate that many of the visitor days are accounted for by backpackers. Off-highway-vehicle (OHV) use, camping, and hunting are also popular activities in the Monument. The category "other" includes activities such as biking, fishing, nature study, photography, picnicking, and viewing wildlife, as well as other activities. This category accounts for the second highest percent of visitor days. Camping and hunting are also significant activities in the Monument.

1997 GSENM Visitor Days by Activity



Activity	Visitor Days
Camping	30,460
Backpacking	80,428
Hunting	23,483
Hiking	7,314
Driving	16,197
OHV	36,000
Other	13,500
Total	207,382

1997 Visitor Days

Park Name	Recreation Visits	Recreation Hours	Visitor Days
Arches NP	858,525	3,715,704	309,642
Bryce Canyon NP	1,174,824	9,336,175	778,015
Canyonlands NP	432,697	4,461,952	371,829
Capitol Reef NP	625,680	1,142,783	95,232
Cedar Breaks NM	608,399	1,273,678	106,140
G S- Escalante NM	192,096	2,488,584	207,382
Zion National Park	2,445,534	16,651,269	1,387,606

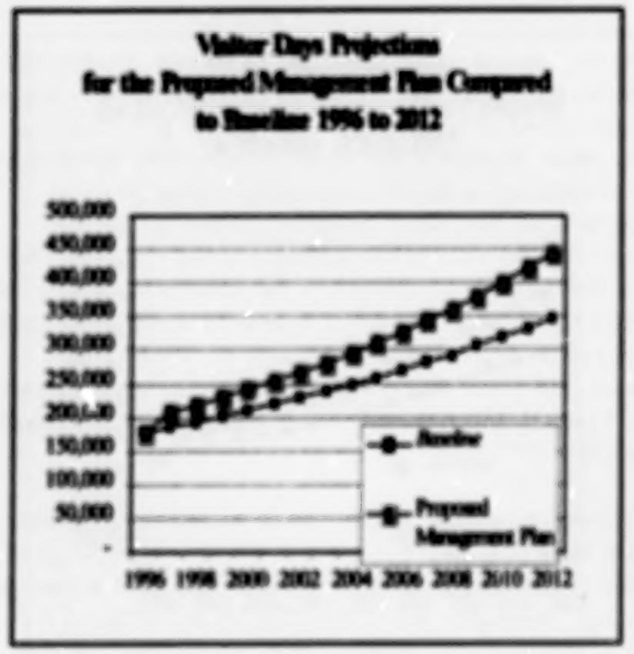
A baseline projection of visitation was also developed. The methodology for developing the baseline was similar to that used for 1997. However, counting procedures are judged to be more accurate in 1997 than in 1996 by BLM officials. Because of this, the estimate for 1996 produced using the same methodology as the 1997 estimate for visitor days was determined to be too low; half of the difference between the 1996 estimate and the 1997 estimate was attributed to undercounting.The purpose of the baseline is to analyze how the visitation associated with the Proposed Management Plan differs from what would have occurred in the area without designation of the Monument. The baseline is a projection of 1996 visitor days (178,097) assuming a constant growth rate of 4.25 percent. This is the same rate at other national destinations in Southern Utah.

Again, the baseline for these GSENM visitor projections is visitation that would have occurred in the absence of national monument designation. The impacts of this visitation are assumed to be embedded in the regional economic and demographic projections. The impacts of the various management plans represent deviations from this visitation baseline path. However, part of the increase in visitation may come at the expense of tourism to other attractions in the area. This has not been formally modeled. Instead, a 5 percent "crowding out" factor has been assumed for both positive and negative visitation impacts.

400

Visitor Projections

The BLM projected visitor days for five categories of use: motorized use, scenic driving, mountain biking, backpacking, and car camping. These five categories of uses accounted for almost 80 percent of visitor days in 1997. Projections developed by the BLM are for the year 2012. The ratio of the five categories to total visitor days are assumed to remain constant. The Governor's Office of Planning and Budget (GOPB) holds the growth rates constant throughout the projection horizon.


Visitor Days Projections for the Proposed Management Plan Compared to Baseline 1996 to 2012

Visitor Day Projections for the Proposed Management Plan

With this Plan, visitor days are projected to grow from 207,382 in 1997 to 442,633 in 2012. Visitor days are projected to increase for all categories of use. Scenic driving is projected to triple from 16,200 visitor days in 1997 to 48,600 in 2012. All-terrain-vehicle (ATV) use is expected to double from 35,000 visitor days in 1997 to 70,000 in 2012. Mountain biking is assumed to increase from 3,000 visitor days in 1997 to 12,000 in 2012. Backpacking is assumed to double from 80,500 visitor days in 1997 to 161,000 in 2012. Car camping is assumed to increase from 30,500 visitor days in 1997 to 61,000 in 2012. Other uses increase from 42,182 in 1997 to 90,033 in 2012.

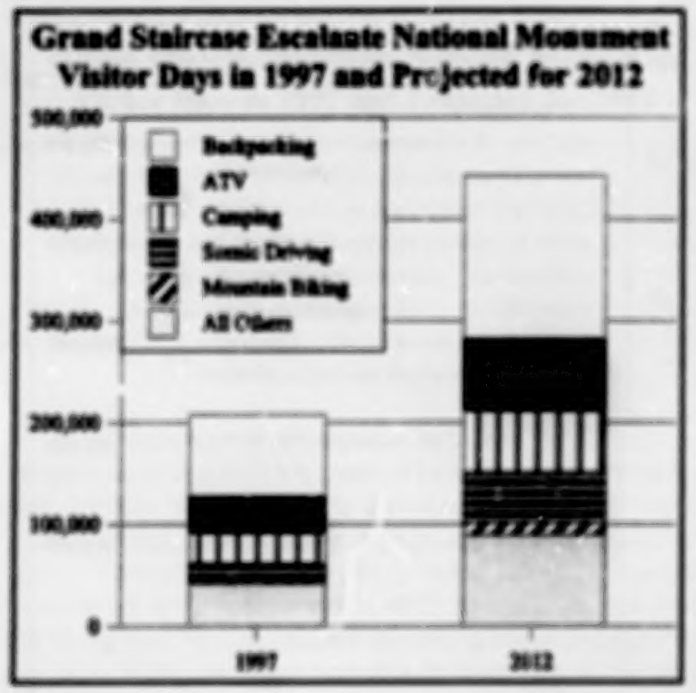
Visitor Spending

An estimate of visitor spending of $20 per visitor day was selected for the analysis. A review of six different surveys of visitor expenditures and reliance on assumptions about the area and the types of visitors support this estimate, and the estimates of spending by industry.

Proposed Visitor Expenditures (Per Visitor Per Day Spending)		
Eating and Drinking	$4.40	22%
Hotel and Personal Services	$4.00	20%
Transportation	$1.60	8%
Trade	$7.00	35%
Amusement and Recreation	$3.00	15%
Average Daily Visitor Spending	$20.00	100%

Direct, Indirect, and Induced Impacts of the Proposed Management Plan

Direct and indirect employment impacts used as inputs to the Utah Process Economic and Demographic (UPED) model were estimated using the base period 1995 Utah Multi-Regional Input-Output (UMRIO-95) model of Southwest Utah and assumptions developed by the monument planning team and GOPB. (Technical documentation of the UMRIO-95 model will be forthcoming on the Internet at http://www.governor.state.ut.us/dea. UPED is a structural equation, economic-demographic model that relates changes in economic structure to demographic changes. Documentation is available at: http://www.governor.state.ut.us/dea/publications/MODEL/Model.htm). Direct impacts involve the BLM's activity and visitor spending. It was assumed that BLM would have an additional $3.4 million budget and about 30 jobs over what would have been the case without Monument designation.


Grand Staircase Escalante National Monument Visitor Days in 1997 and Projected for 2012

Socio-Economic Impacts of the Proposed Management Plan

Population

An increase of 244 people is projected for 1998. The largest increase in population is for the year 2000, in which 961 people are projected. However, in 2001 this number declines to 284 and grows slowly each year to reach 422 in 2012.

Employment

Employment is projected to increase by 157 in 1998. The largest increase in employment is 615 in the year 2000. However, in 2001 this number declines to 172, then increases slowly to 248 in 2012.

Earnings

Employees earnings are projected to be $4.6 million in 1998, peak at $18.4 million in 2000, then grow from $4.9 million in 2001 to $6.6 million in 2012.

Local Government Revenues and Expenditures

Local government revenues are projected to be $361,000 in 1998, peak at $1,356,000 in 2000, then increase steadily from $397,000 in 2001 to $598,000 in 2012. Local government expenditures follow the same path, and are projected to be $201,000 in 1998, peak at $791,000 in 2000, then increase steadily from $232,000 in 2001 to $362,000 in 2012. The results of this are net revenues of $160,000 projected for 1998, peaking at $565,000 in 2000, then increasing steadily from $165,000 in 2001 to $236,000 in 2012.

Economic, Demographic and Fiscal Impacts to the Southwest Region from the GSENM Proposed Management Plan

	Visitor Days	Population	Employment	Earnings ($000)	Revenue ($000)	Expenditures ($000)	Net Revenue ($000)
1998	218,134	244	157	4,616	361	201	160
1999	229,443	338	215	6,459	496	278	218
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2001	253,850	284	172	4,940	397	232	165
2002	267,011	299	179	5,132	416	244	172
2003	280,854	309	183	5,241	429	253	176
2004	295,414	319	190	5,526	455	262	193
[illegible]	[illegible]	330	195	[illegible]	[illegible]	[illegible]	[illegible]
2006	326,839	344	203	5,762	485	295	189
2007	343,784	347	209	5,913	502	299	203
2008	361,607	360	215	5,947	512	310	202
2009	380,355	372	222	6,079	530	320	210
[illegible]	[illegible]	[illegible]	231	6,279	553	334	[illegible]
2011	420,816	405	240	6,444	574	349	225
2012	442,633	422	248	6,636	598	362	236

Impacts Beyond the Scope of this Study

The socio-economic impacts reported are driven by two factors: direct BLM spending and employment, and spending by visitors. The direct, indirect and induced effects of this spending on population, employment, employee earnings, and government revenues in the Southwest region are the focus of this analysis. The analysis relies on the current structure of the economy and historical averages to estimate these impacts.

However, the economy in Southwest Utah will be affected by many factors that are not directly the result of BLM actions, but may be influenced by how the Monument is managed. Some of these factors may have socio-economic impacts that are even larger than those associated with the Proposed Management Plan analyzed here.

Private enterprises, local government and others will make decisions regarding infrastructure, business development, service expansions and the like. These decisions may result in significant economic impacts. For example, a decisionmade by a private business to open a lodging establishment could have the effects of capturing more visitor spending, employing more people, and generating higher tax revenues. Similarly, decisions made about restaurants, tow truck companies, car rental companies, outdoor supplies sales/rental companies, grocery stores, tour guides (air, horseback, jeep, etc.), and research projects are not decisions made by the BLM, but impact the Southwest economy and are not captured in this analysis. Another example of factors beyond the scope of this analysis are actions taken by local governments. Local governments can increase or decrease levels of services such as emergency search and rescue, law enforcement, emergency medical services, road maintenance, police protection, fire protection, waste management services, etc. Decisions about service levels will effect revenues and expenditures.

Many small rural communities in the western United States that have been supported by extractive industries or agriculture have experienced a transition toward greater reliance on tourism. This of course drives a different type of development in these communities, bringing in services that had not previously been present and changing the economies and character of these communities. Property values are often driven upward and greater demands are made on local governments to provide for the increased infrastructure and service needs. Unfortunately, adequate data does not exist to systematically evaluate these potential impacts to the area.

403

References

BEST COPY AVAILABLE

Betencourt, J. 1984. Late Quaternary Plant Zonation and Climate in Southeastern Utah. *Great Basin Naturalist* 44:1-32.

Welsh, S.L. and C.A. Toft. 1981. Biotic Communities of Hanging Gardens in Southeastern Utah. *National Geographic Society Research Reports* 13:663-681.

United States Department of Agriculture, Natural Resources Conservation Service. 1997. Introduction to Microbiotic Crusts.

United States Department of the Interior, Fish and Wildlife Service. 1999. Utah Field Office Guidelines for Raptor Protection From Human and Land Use Disturbances. Salt Lake City, Utah. 41 pp.

Glossary

BEST COPY AVAILABLE

ACTIVE PREFERENCE: The total number of animal unit months of forage that can be licensed.

AIR QUALITY: A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

AIR QUALITY CLASS I AND II AREAS: Regions in attainment areas where maintenance of existing good air quality is of high priority. Class I areas are those that have the most stringent degree of protection from future degradation of air quality. Class II areas permit moderate deterioration of existing air quality.

ALLOCATION: Process to specifically assign use between and ration among competing users for a particular area of public land or related waters.

ALLOTMENT: An area allocated for livestock use by one or more qualified grazing permittees including prescribed numbers and kinds of livestock under one plan of management.

ALLOTMENT MANAGEMENT PLAN (AMP): A written program of livestock grazing management including supportive measures, if required. An AMP is designed to attain specific management goals in a grazing allotment and is prepared cooperatively with the permittee(s) or lessee(s).

ALL-TERRAIN VEHICLE (ATV): All-terrain vehicle - 42" width or smaller. A small, amphibious motor vehicle with wheels or tractor treads for traveling over rough ground, snow, or ice, as well as on water.

ALTERNATIVE: One of at least two proposed means of accomplishing planning objectives.

ANALYSIS: The examination of existing and/or recommended management needs and their relationships to discover and display the outputs, benefits, effects, and consequences of initiating a proposed action.

ANIMAL UNIT MONTH (AUM): The amount of forage required to sustain the equivalent of 1 cow for 1 month; 1 wild horse for 1 month; or 5 sheep for 1 month; 8.9 deer for 1 month (winter season), 5.8 deer for 1 month (summer season); 9.6 antelope for 1 month; 5.5 bighorn sheep for 1 month; 2.2 burros for 1 month; 1.2 elk for 1 month (winter season) or 2.1 elk for 1 month (year-long) (usually 800 lbs. of useable air-dried forage).

AQUATIC: Living or growing in or on the water.

AQUIFER: Stratum or zone below the surface of the earth capable of producing water, as from a well. A saturated bed, formation, or group of formations which yield water in sufficient quantity to be of consequence as a source of supply. An aquifer acts as a transmission conduit and storage reservoir.

ARCH: A natural opening through a narrow wall or plate of rock.

ARCHAEOLOGY: The scientific study of the life and culture of past, especially ancient, peoples, as by excavation of ancient cities, relics, artifacts, etc.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC): An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life/provide safety from natural hazards.

BIODIVERSITY: The variety of life and its processes, and the interrelationships within and among various levels of ecological organization. Conservation, protection, and restoration of biological species and genetic diversity are needed to sustain the health of existing biological systems. Federal resource management agencies must examine the implications of management actions and development decisions on regional and local biodiversity.

BIOLOGICAL SOIL CRUSTS: Composed of cyanobacteria, green and brown algae, mosses, and lichens that bind together with soil particles to create a crust.

BITUMEN: Any of various mixtures of hydrocarbons such as asphalt, tar, or petroleum.

CENOMANIAN-SANTONIAN AGES: Span of geologic ages including Cenomanian, Turonian, Coniacian, and Santonian during Late Cretaceous time, 98 to 84 million years ago.

CONCESSIONAIRE: Someone who holds a long term authorization to possess and use public lands to provide recreation facilities and services for a fixed period of time authorized under BLM regulations.

CONSULTATION: A meeting to discuss, decide, or plan something.

CRYPTOBIOTIC CRUST: See BIOLOGICAL SOIL CRUSTS

CRYPTOGAM: A plant that bears no flowers or seeds but propagates by means of spores. Cryptogamic organisms make up a cryptogamic crust or surface on certain soils.

CUBIC FEET PER SECOND (cfs): As a rate of stream flow, a cubic foot of water passing a referenced section in 1 second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

CULTURAL RESOURCES: Those resources of historical and archaeological significance.

CUMULATIVE IMPACTS: Additional and interactive combinations of activities that are not necessarily individually quantitatively different, but together require different management techniques and applications. Cumulative impacts occur when there are multiple infringements on the same values.

DIRT BIKE: Non-street legal motorcycle.

EASEMENT: A right or privilege one may have on another's land.

ECOSYSTEM: A system made up of a community of animals, plants, and bacteria and its interrelated physical and chemical environment.

ELIGIBLE RIVER SEGMENT: A section of a river that qualifies for inclusion into the National Wild and Scenic River System through determination that it is free-flowing and with its adjacent land area possessing at least one river-related value considered to be outstandingly remarkable.

ENDANGERED SPECIES: Any animal or plant species in danger of extinction throughout all of a significant portion of its range. These species are listed by the U. S. Fish and Wildlife Service.

EPHEMERAL STREAM: A stream that flows only in direct response to precipitation, and whose channel is at all times above the water table.

EQUESTRIAN: Of horses, horsemen, or horseback riding.

FAUNA: The animals of a specified region or time.

FLOODPLAIN: A plain along a river, formed from sediment deposited by floods.

FLORA: The plants of a specified region or time.

FORAGE: Vegetation of all forms available and of a type used for animal consumption.

FORESTRY PRODUCT AREAS: Forest lands stocked with other than timber species (i.e., piñon, juniper, mountain mahogany, etc.). Uses of the products are generally limited to firewood, posts, and harvest of piñon pine nuts

FORMATION: The primary unit in stratigraphy consisting of a succession of strata useful for mapping or description. Most formations possess certain lithologic features that may indicate genetic relationships.

FOSSIL: The remains or traces of animals or plants which have been preserved by natural causes in the earth's crust exclusive of organisms which have been buried since the beginning of historic times.

FOUR-WHEEL-DRIVE (4WD): Four-wheel-drive, differential transfer case disperses 50/50 front and rear displacement. Trucks, cars, buses, or sport utility vehicles with high clearance and the ability to operate off-pavement as well as on highways.

FUNCTIONING-AT-RISK: Riparian-wetland areas that are in functional condition but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

GEOLOGY: The science which studies the Earth, the rocks of which it is composed, and the changes it has undergone or is undergoing.

GRAZING ALLOTMENT CATEGORIES: Direction under which all grazing allotments are categorized for management purposes into three groups. The overall objectives are: M-maintain the current resource conditions; I-improve the current resource conditions; and C-custodial manage the existing resource values.

GRAZING PERMIT: An authorization which allows grazing on public lands. Permits specify class of livestock on a designated area during specified seasons each year. Permits are of two types: preference (10 year) and temporary nonrenewable (1 year).

GRAZING PREFERENCE: The total number (active and suspended non-use) of animal unit months of livestock grazing on public land apportioned and attached to base property owned or controlled by a permittee.

GRAZING SYSTEM: A prescribed method of grazing a range allotment having two or more pastures or management units to provide periodic rest for each unit.

HABITAT: A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

HANGING GARDEN: Small pockets of vegetative associations surrounding "canyon-wall" springs that often contain a wide variety of unique plant and insect species. Hanging gardens are characteristic of flat-lying strata with deeply incised canyons of the Colorado Plateau.

HYDROCARBON: An organic compound containing only hydrogen and carbon, such as petroleum or crude oil.

HYDROLOGY: The science dealing with the properties, distribution, and circulation of water.

IMPACT: Synonymous with effects. Includes ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may also include those resulting from actions which may have both beneficial and detrimental (adverse) effects. Impacts may be considered as direct, indirect, or cumulative:

- **Direct:** Impacts caused by an action an occurring at the same time and place.
- **Indirect:** Impacts caused by the proposed action and occurring later in time or farther removed in distance, but are still reasonably foreseeable.
- **Cumulative:** Those which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

INHOLDING: A non-Federal parcel of land that is completely surrounded by Federal land.

INSTANT STUDY AREA (ISA): A designation of all primitive or natural areas formally identified prior to November 1, 1975, that were to be studied for wilderness suitability and recommended to the President by July 1, 1980 as mandated under Section 603 of FLPMA.

INTERIM MANAGEMENT POLICY (IMP): An interim measure governing lands under wilderness review. This policy protects Wilderness Study Areas from impairment of their suitability as wilderness.

INTERMITTENT STREAM: Seasonal stream. A stream that flows only at certain times of the year when it receives water from springs or from some surface source, such as melting snow in mountainous areas.

INVERTEBRATE SPECIES: Any animal without a backbone or spinal column.

KIND OR CLASS OF LIVESTOCK:

- **Kind:** The species of domestic livestock-cattle and sheep.
- **Class:** The age class (i.e., yearling or cows) of a species of livestock.

KNOWN GEOLOGIC STRUCTURES: Technically, the known geologic structure of a producing oil or gas field is construed by the Geological Survey to be the trap, whether structural or stratigraphic, in which an accumulation of oil or gas has taken place, and the limits of said trap, irrespective of the degree to which it may be occupied by oil or gas. Known geologic structures are frequently much more extensive than the pools of oil or gas they may contain, and the extent and place of any oil or gas accumulation therein, though influenced by structure, is finally determined by such factors as stratigraphy, hydrocarbon supply, sand conditions, and hydrostatic pressure. The Geological Survey seeks to evaluate the net effect of these several factors in terms of reasonably presumptive productive acreage and, as far as practicable, to conform the results, modified to include a fair safety margin, to the subsurface contours of the dominant structural feature involved.

LAND USE PLAN: A plan that reflects an analysis of activity systems and a carefully studied estimate of future land requirements for expansion, growth control, and revitalization or renewal. The plan shows how development in the area should proceed in the future to insure the best possible physical environment for living, the most economic and environmentally sensitive use of land, and the proper balance in use. The land use plan embodies a proposal as to how land should be used in the future, recognizing local objectives and generally accepted principals of health, safety, convenience, economy, and general living amenities.

LEASE: An authorization or contract by which one party (lessor) conveys the use of property, such as real estate, to another (lessee) in return for rental payments. In the case of oil, gas, and coal leases in the Monument, the U.S. Department of Interior is a lessor and has conveyed the right to explore and develop these resources to corporations or individuals on various land tracts. In addition to rental payments, lessees also pay royalties (a percentage of value) to the lessor from resource production.

LEASABLE MINERAL: A mineral such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be developed under the Mineral Leasing Act of 1920, as amended.

LOCATABLE MINERAL: Any valuable mineral that is not saleable or leasable including gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872.

MANAGEMENT IGNITED FIRE: Controlled application of fire to natural fuels under conditions of weather, fuel moisture, and soil moisture that will allow confinement of the fire to a predetermined area and, at the same time, will produce the intensity of heat and rate of spread required to accomplish certain planned benefits to one or more objectives to wildlife, livestock, and watershed values. The overall objectives are to employ fire scientifically to realize maximum net benefits at minimum environmental damage and acceptable cost.

MIGRATORY: A group of people, or of birds, fishes, or plants that move from one region to another with the change of seasons or climate.

MINERAL ENTRY: The location of mining claims by an individual to protect his/her right to a valuable mineral.

MINERAL MATERIALS: Refer to saleable minerals.

MINERAL POTENTIAL:

- **High:** Those lands currently producing oil or gas or having high current industry interest.

- **Moderate:** Those lands which have had oil and gas shows in favorable geologic environments.
- **Low:** Those lands where either the geologic environment appears to be favorable for the accumulation of oil and gas, or where little or no information is available to evaluate the oil and gas potential.

MINERAL WITHDRAWAL: A withdrawal of public lands which are potentially valuable for leasable minerals. This precludes the disposal of the lands except with a mineral reservation, unless the lands are found to not be valuable for minerals.

MINIMUM IMPACT FILMING: A filming activity which does not involve:

- impact to sensitive habitat or species
- impact to Native American Indian sacred rites
- use of explosives or major use of pyrotechnics
- more than minimum impacts to land, air, or water
- use of exotic species with danger of introduction into the area
- adverse impacts to sensitive resources including historic, cultural, or paleontological sites; sensitive soils; relict environments; wetlands or riparian areas.
- use of heavy equipment
- use of vehicles off designated routes
- set construction
- significant restriction of public access
- significant use of domestic livestock
- aircraft taking off, landing, or flying less than 1,000 feet above the site
- 15 or more production vehicles, or 75 or more people
- continue in excess of 10 days

MITIGATING MEASURES: Constraints, requirements, or conditions imposed to reduce the significance of or eliminate an anticipated impact to environmental, socioeconomic, or other resource value from a proposed land use. Committed mitigating measures are those measures BLM is committed to enforce (i.e., all applicable laws and their implementing regulations).

MOUNTAIN BICYCLE: Bicycle designed for off-pavement use. Generally are multi-geared with fat knobby tires. Frames and tire rims are stronger than road bicycles. Sometimes referred to in this document as a mechanized vehicle.

NATIONAL WILD AND SCENIC RIVERS SYSTEM: Established by the Wild and Scenic Rivers Act of 1958 to protect rivers and their immediate environments that have outstanding scenic, recreation, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in free-flowing conditions. The system provides for the designation of three types of rivers:

- **Recreation:** Rivers or sections of rivers readily accessible by road or railroad that may have some development along their shorelines and may have undergone some impoundment or diversion in the past.
- **Scenic:** Rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely undeveloped, but accessible in places by road.
- **Wild:** Rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with essentially primitive watersheds or shorelines and unpolluted waters.

NATURALNESS: An area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." (Section 2c, WILDERNESS ACT).

NON-FUNCTIONING: Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows.

OFF-HIGHWAY VEHICLES (OHV): Any motorized vehicle designed for or capable of cross-country travel over lands, water, sand, snow, ice, marsh, swamp-land, or other terrain.

BEST COPY AVAILABLE

OFF-HIGHWAY VEHICLE DESIGNATIONS:

- **Open:** Designated areas where OHVs may be operated.
- **Limited:** Designated areas and trails where the use of an OHV is subject to restrictions, such as limiting the dates and times of use (seasonal restrictions); limiting use to designated roads and trails; limiting use to existing roads and trails. Combinations of restrictions are possible.
- **Closed:** Designated areas, roads, and trails where the use of an OHV is permanently or temporarily prohibited. Emergency use of vehicles is allowed.

OUTSTANDING: Standing out among others of its kind; distinguished; excellent.

OUTSTANDING NATURAL AREA (ONA): These are established to preserve scenic values and areas of natural wonder. The preservation of these resources in their natural condition is the primary management objective. Access roads, parking areas, and public use facilities are normally located on the periphery of the area. The public is encouraged to walk into the area for recreation purposes wherever feasible.

PALEONTOLOGY: The branch of geology that deals with life forms from the past, especially prehistoric life forms, through the study of plant and animal fossils.

PERCHED WATER TABLE: Water table above an impermeable bed underlain by unsaturated rocks of sufficient permeability to allow movement of ground water.

PERENNIAL STREAM: A stream that flows continuously. Perennial streams are generally associated with a water table in the localities through which they flow.

PERMIT: A short-term, revocable authorization to use public lands for specific purposes.

PERMITTEE: (Livestock Operator) A person or organization legally permitted to graze a specific number and class of livestock on designated areas of public land during specified seasons each year.

PETRIFIED WOOD: Fossilization of wood through introduction or replacement by silica (silicified wood) in such a manner that the original form and structure of the wood is preserved.

PHYSIOGRAPHIC REGION: Region of similar geologic structure and climate with a unified history of land formation.

PLACER DEPOSIT: A mass of gravel, sand, or similar material derived from weathering and erosion of bedrock. These masses often contain heavy mineral grains concentrated due to the action of water.

PREY SPECIES: An animal taken by a predator as food.

PROPERLY FUNCTIONING CONDITION (PFC): Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment; capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.

RANGELAND IMPROVEMENTS: Any activity or program on or relating to rangelands that is designed to improve forage production, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and enhance habitat for livestock, wildlife, and wild horses and burros. Rangeland improvements include land treatments (e.g., chaining, seeding, burning, etc.), stockwater developments, fences, and trails.

RAPTORS: Birds of prey, such as the eagle, falcon, hawk, owl, or vulture.

RELICT PLANT COMMUNITY: Areas of plants that have persisted despite the pronounced warming and drying of the interior west over the last few thousand years and/or have not been influenced by settlement and post-settlement activities.

RESEARCH NATURAL AREA (RNA): A natural area established and maintained for research and education, which may include:

- typical or unusual plant or animal types, associations, or other biotic phenomena
- characteristic or outstanding geologic, soil, or aquatic features or processes.

The public may be excluded or restricted from such areas to protect studies.

RIGHT-OF-WAY: Federal land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a ROW authorization.

RIPARIAN HABITAT: Riparian habitat is defined as an area of land directly influenced by permanent (surface or subsurface) water. They have visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and stream-banks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

RIPARIAN VEGETATION: Plants adapted to moist growing conditions along streams, waterways, ponds, etc.

ROUTE: A path, way, trail, road, or other established travel corridor.

SALEABLE MINERALS: Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

SEASON-OF-USE: The timing of livestock grazing on a rangeland area.

SPECIAL STATUS SPECIES: Wildlife and plant species either Federally listed or proposed for listing as endangered or threatened; state-listed or BLM determined priority species.

STRATIGRAPHY: The branch of geology which treats the formation, composition, sequence, and correlation of stratified rocks as part of the Earth's crust.

STREET LEGAL MOTORCYCLE: Utah law defines this as a motorcycle which has a tail light, headlight, turn signal, and is registered.

SUSPENDED: Term used when describing an administrative state of mining operations or oil, gas, and mineral leases, whereby the operation or lease is "suspended" or on standby while an administrative action is contemplated. When mineral leases are suspended, the lessee cannot explore, develop, or otherwise enjoy the benefits of the lease. Also, the term (time period) of the lease is suspended.

TAR SAND: A commonly used name to describe a sedimentary rock reservoir impregnated with a very heavy, viscous crude oil which cannot be produced by conventional production techniques. Tar-sand infers a sandy sedimentary rock as the host, but this is not always the case as other porous rocks such as siltstone and fractured carbonates have also been classified as tar-sand.

THREATENED SPECIES: Any animal or plant species likely to become endangered within the foreseeable future throughout all of a significant portion of its range. These species are listed by the U.S. Fish and Wildlife Service.

TINAJAS: Surface depressions in rock formations, particularly sandstone, that collect water and provide habitat for specialized plant and animal species.

TOPOGRAPHY: The accurate and detailed description of a place.

TOTAL DISSOLVED SOLIDS (TDS): The total quantity (reported in milligrams per liter) of dissolved materials in water.

TREND IN RANGE CONDITION: An interpretation of the direction of change in range condition. These determinations may relate to ecological site or forage conditions. Also vegetation trend that is improving (upward) not changing (static) and declining (downward).

413

TWO-WHEEL-DRIVE (2WD): Vehicle clearance generally lower than with a 4WD. Not designed to travel off-pavement.

UTILITY: A service provided by a public utility, such as electricity, telephone, or water.

VEGETATION RESTORATION METHODS: Mechanical, chemical, biological, and fire vegetation treatments used to restore and promote a natural range of native plant associations. Treatments are designed for specific areas and differ according to the area's suitability and potential. The most common land treatment methods alter the vegetation by spraying with pesticides, burning, or plowing, followed by seeding with native plant species.

VERTEBRATE SPECIES: Any animal with a backbone or spinal column.

VISITOR DAY: Twelve visitor hours which may be aggregated by one or more persons in single or multiple visits.

VISITOR USE: Visitor use of a resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

VISUAL RESOURCE MANAGEMENT (VRM) CLASSES: Management classes are determined on the basis of overall scenic quality, distance from travel routes, and sensitivity to change.

- **Class I:** Provides primarily for natural ecological changes only. It is applied to wilderness areas, some natural areas, and similar situations where management activities are to be restricted.
- **Class II:** Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.
- **Class III:** Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.
- **Class IV:** Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

WATERSHED: All land and water within the confines of a drainage divide.

WETLANDS: Lands including swamps, marshes, bogs, and similar areas, such as wet meadows, river overflows, mud flats, and natural ponds.

WILD AND SCENIC RIVERS: See National Wild and Scenic River System.

WILDERNESS AREA: An area officially designated as wilderness by Congress. Wilderness areas will be managed to preserve wilderness characteristics and shall be devoted to "the public purposes of recreation, scenic, scientific, educational, conservation, and historical use."

WILDERNESS STUDY AREA (WSA): Areas under study for possible inclusion as a Wilderness Area in the National Wilderness Preservation System.

WILDFIRE: A free-burning fire requiring a suppression response.

WITHDRAWAL: Removal or "withholding" of public lands from operation of some or all of the public land laws (settlement, sale, mining, and/or mineral leasing). An action which restricts the use or disposal of public lands, segregating the land from the operation of some or all of the public land and/or mineral laws and holding it for a specific public purpose. Withdrawals may also be used to transfer jurisdiction of management to other Federal agencies.

414

Index

access (also see transportation) 1.2-1.4, 1.14, 2.4, 2.5, 2.8, 2.11, 2.15-18, 2.20-25, 2.37, 2.41, 2.56, 3.2, 3.3, 3.5, 3.8, 3.10, 3.13, 3.14, 3.16, 3.19, 3.20, 3.23, 3.26, 3.27, 3.30, 3.33, 3.34, 3.36, 3.37, 3.42-3.44, 3.51, 3.52, 3.55, 3.59, 3.60, 3.67, 3.72, 3.75, 3.82, 3.84, 3.86, 3.89,3.90, 3.92, 3.94, 3.95, 3.97, 3.103, 3.106, 3.108, 3.109, 4.3, 4.5, 4.7, 4.10, 4.11, 4.14, 5.1, 5.4, 5.51-53, 5.58-60, 5.67, 5.68, 5.72, 5.82, 5.85-87, 5.94, 5.96, 5.97
adaptive management 1.11, 1.14, 1.15, 2.3-8, 2.19, 2.25, 2.26, 2.28, 2.31, 2.33, 2.37, 2.45, 2.46, 2.49, 2.72, 2.73, 3.3, 3.6, 3.12. 3.18, 3.19, 3.25, 3.29,3.31, 3.32, 3.37, 3.36, 3.38, 3.41, 3.42, 3.41, 3.42, 3.47, 3.49, 3.50, 3.49, 3.50, 3.55, 3.57, 3.58,3.56, 3.58, 3.63, 3.65, 3.66, 3.65, 3.73, 3.77, 3.80, 3.82, 3.84, 3.85, 3.88, 3.92, 3.93, 3.96, 3.97,3.96, 3.102, 3.103, 3.108, 4.12, 5.58, 5.71, 5.72, 5.75, 5.83, A3
administrative routes 1.4, 2.15, 2.20, 2.22, 2.25, 3.9, 3.15, 3.21, 3.27, 3.38, 3.45, 3.53, 3.61, 3.62, 3.67, 3.68, 3.72, 3.75, 3.79, 3.103, 5.52, 5.54, 5.58-60
advisory committee, GSENM 1.14, 1.18, 1.20, 2.19, 2.30, 2.31, 2.44-46, 2.49, 2.51, 2.72, 3.3, 3.6, 3.12, 3.18, 3.25, 3.37, 3.42, 3.50, 3.65, 3.85, 4.12, 5.2, 5.68-70, 5.72, 5.74, A3.5, A3
air quality 1.3, 1.16, 2.13, 2.14, 3.10, 3.17, 3.23, 3.30, 3.35, 3.40, 3.47, 3.55, 3.64, 3.69-3.74, 3.77, 3.80, 3.84, 3.87, 3.91, 3.92, 3.96, 3.98, 3.102, 4.13, 5.57, 5.69
aircraft operations 2.23, 5.67
allocations 1.14, 1.15, 2.19, 2.33, 2.34, 2.38, 3.3, 3.5, 3.7, 3.8, 3.11, 3.13, 3.14, 3.32, 3.37, 3.48, 3.51, 3.56, 3.59, 3.79, 3.87, 3.89, 3.92, 5.88, 5.90
alternative comparison table 1.16
animal damage control (see Wildlife Services)
analysis assumptions 3.2
archaeology 2.4, 2.56, 2.73, 3.85, 3.107, 4.14, 5.70, 5.80, A1, A4
areas of critical environmental concern (ACEC) 2.52, 3.108, 4.2, 4.3, 5.71-73, A10
authorizations 1.13, 2.2, 2.14, 2.22, 2.38-43, 3.2, 3.102, 4.8, 5.52, 5.67, 5.69, 5.81, 5.82, 5.93
authorized users 1.4, 2.20, 2.22, 2.25, 3.9, 3.15, 3.94, 5.52, 5.59, 5.60
bald eagle 2.33, 3.56, 3.61, 3.62, 5.57, A7, A8
biological control 2.45, 3.69
biological soil crusts 2.6, 2.19, 2.20, 3.6, 3.7, 3.10, 3.11, 3.13, 3.17-3.25, 3.30, 3.41, 3.50, 3.55, 3.59, 3.64, 3.65, 3.70, 3.71, 3.74, 3.108, 5.89, 5.90,A1, A4
California condor 2.35, 3.56
campfires 1.15-16, 2.25, 2.38, 2.44, 3.37, 3.47, 3.96, 5.90, 5.91, A7, A8
camping 1.16, 2.3, 2.4, 2.15, 2.17-20, 2.22, 2.25, 2.33-35, 2.38, 2.44, 2.46, 2.56, 3.4, 3.5, 3.7, 3.8, 3.10, 3.13, 3.14, 3.17, 3.19, 3.20, 3.23, 3.25-3.27, 3.32, 3.37, 3.38, 3.42-3.45, 3.48, 3.50-3.52, 3.56, 3.59-3.61, 3.64, 3.66-3.68, 3.71, 3.72, 3.74, 3.75, 3.82, 3.83, 3.87-3.90, 3.92-3.94, 3.96, 3.97, 3.103, 4.8, 5.52, 5.58, 5.60, 5.75, 5.91
chaining 2.45, 3.10, 3.15, 3.16, 3.23, 3.30, 3.55, 3.64, 3.68, 3.84
changes in management situation 1.14
changes between the draft and proposed plan 1.14
Christmas trees 3.96

climbing 2.3, 2.8, 2.16, 2.34, 2.35, 3.60, A4
collaborative management 2.72, 4.12
collections 2.25, 3.5, 3.11, 3.23, 3.24, 3.31, 3.36, 3.48, 3.49, 3.56, 3.69, 3.73, 3.77, 3.78, 3.84, 3.85, 3.92, 3.96, 3.98, 3.102, 3.105, 5.68, A1

comments
- ACC- 1.2, 3.4, 5.1-55, 5.58-61, 5.66, 5.82, 5.83
- BIO- 5.1-24, 5.26-32, 5.34-48, 5.56, 5.61-66, 5.83
- GEN- 5.1-50, 5.66-77, 5.80-83
- GRAZ- 5.1-50, 5.83-85
- LAND- 3.74, 5.1-50, 5.85-87
- REC- 5.1-50, 5.87-91
- WAT- 5.1-13, 5.15-21, 5.23-27, 5.29-32, 5.35-38, 5.40-47, 5.49, 5.50, 5.91-94
- WSA- 5.1-50, 5.94, 5.95
- WSR- 5.1-50, 5.95-99

comment period 1.11, 2.1, 4.3, 5.1, 5.51, 5.97
commercial filming (also see filming) 1.15, 2.16, 2.30, 2.37, 3.5, 3.6, 3.5, 3.11, 3.17, 3.18, 3.17, 3.24, 3.31, 3.36, 3.41, 3.49, 3.57, 3.65, 3.73, 3.77, 3.80, 3.81, 3.87, 3.88, 3.92, 3.96, 3.98, 3.104, 5.66, A4
communication sites 1.4, 1.16, 2.3, 2.22-24, 2.30, 2.37, 2.44, 3.4, 3.6, 3.8, 3.10-3.12, 3.11, 3.12, 3.15, 3.18, 3.21, 3.24, 3.27, 3.31, 3.36, 3.41, 3.44, 3.49, 3.53, 3.57, 3.61, 3.65, 3.68, 3.70, 3.71, 3.70, 3.72, 3.74, 3.78, 3.81, 3.87, 3.91, 3.92, 3.96, 3.98,3.102, 3.103, 4.7, 4.9, 4.11, 5.52, 5.59, 5.85, 5.87, 5.92, A4
communities 1.1, 1.4, 1.13, 1.14, 2.2, 2.4-7, 2.9, 2.11, 2.12, 2.14-17, 2.20, 2.22, 2.23, 2.28, 2.29, 2.31, 2.44, 2.72, 3.2, 3.10, 3.30, 3.36-3.40, 3.54, 3.64, 3.101, 3.103, 3.105-3.109, 4.1, 4.7-12, 5.51, 5.54, 5.56, 5.58, 5.60, 5.63, 5.64, 5.68, 5.70, 5.77, 5.78, 5.80, 5.87, 5.88, 5.90-92, 5.96, 5.97
competitive events 1.17, 2.16, 5.89, 5.91, A12
consultation 1.4, 2.5, 2.19, 2.27, 2.30, 2.32-37, 2.44, 2.45, 2.49, 2.72, 3.31, 3.32, 3.57, 3.58, 3.60, 3.101, 3.108, 4.3, 5.70, 5.74, 5.94, A7

cryptobiotic soils (see biological soil crust)
cumulative impacts 3.1, 3.4, 3.101, 3.105-3.107, 3.109, 5.71, 5.73, 5.76, 5.77, 5.80
education and outreach 2.31
EIS distribution list 4.13
emergency and management exceptions 2.25, 3.8, 3.14, 3.33, 3.44, 3.52, 3.60, 3.67, 3.72, 3.75, 3.82, 3.89, 3.94, 3.97
endangered fish 2.12, 2.33, 3.63, A7, A8
enforcement 1.4, 2.22, 2.32, 2.37, 2.38, 3.8, 3.14, 3.20, 3.27, 3.31, 3.34, 3.44, 3.52, 3.56, 3.61, 3.67, 3.72, 3.75, 3.83, 3.89, 3.90, 3.101, 3.105, 4.7, 5.51, 5.53, 5.72, 5.82
environmental consequences 1.2, 3.1-3.3, 5.53, 5.58, 5.61, 5.65, 5.74, 5.76, 5.79, 5.85

- facilities (also see recreational facilities) 1.2, 1.4, 1.13, 1.14, 1.18, 1.20, 2.3, 2.6, 2.8-11, 2.14-18, 2.24, 2.25, 2.30, 2.38, 2.44, 2.46, 2.61, 2.62, 3.2, 3.4, 3.5, 3.7, 3.8, 3.6-3.8, 3.10, 3.11, 3.13, 3.14, 3.11-3.13, 3.17, 3.19, 3.20, 3.18-3.20, 3.23, 3.25, 3.26, 3.24-3.26, 3.32, 3.33, 3.31-3.33, 3.37, 3.38, 3.36-3.38, 3.40, 3.42-3.44, 3.41-3.43, 3.46, 3.48, 3.50-3.52, 3.49-3.51, 3.56, 3.59, 3.60, 3.57, 3.59, 3.60, 3.64, 3.66, 3.67, 3.65-3.67, 3.71, 3.72, 3.70, 3.71, 3.73-3.75, 3.74, 3.79, 3.80, 3.82, 3.81, 3.85, 3.87-3.89, 3.88, 3.90, 3.92-3.94, 3.93, 3.98, 3.100, 3.103, 3.102, 3.103, 3.108, 4.6, 4.7, 4.9, 5.52, 5.53, 5.61, 5.64, 5.68, 5.70, 5.73, 5.76, 5.77, 5.85-89, 5.91, 5.92, 5.96
- federal register notices 4.3
- fees 2.25, 2.27, 2.39, 5.66, 5.84
- fences 2.17, 2.18, 2.22, 2.25, 3.7, 3.12, 3.14, 3.19, 3.26, 3.37, 3.44, 3.51, 3.60, 3.71, 3.75, 3.82, 3.94, 5.88, 5.89
- filming (also see commercial filming) 1.15, 1.17, 2.16, 2.30, 2.37, 3.5, 3.6, 3.5, 3.6, 3.11, 3.17, 3.18, 3.17, 3.24, 3.31, 3.36, 3.41, 3.49, 3.57, 3.65, 3.73, 3.77, 3.80, 3.81, 3.87, 3.88, 3.92, 3.96, 3.98, 3.104, 4.6, 5.66, 5.78, A4
- fish and wildlife 1.12, 2.2, 2.7, 2.8, 2.25, 2.52, 3.30, 3.48, 3.78, 4.4, 4.13, 4.14, 5.3, 5.61, 5.63-65, 5.73
- Federal Land Policy and Management Act (FLPMA) 1.1, 1.12, 1.13, 2.2, 2.8, 2.20, 2.26, 2.28, 2.40, 2.41, 2.51, 2.52, 2.71, 4.3, 4.6, 4.8, 4.10, 4.11, 5.53, 5.70, 5.72, 5.73, 5.79, 5.80, 5.83-85, 5.94,5.95, A7, A8
- forestry products 2.20, 2.25, 2.36, 2.46, 3.21, 3.28, 3.54, 3.62, 3.76, 3.83, 3.95-3.98, 4.7, 5.58, 5.63
- frontcountry zone 1.15, 2.14, 2.17, 2.18, 2.21, 2.62, 3.87, 3.108, 5.52, 5.53, 5.88, 5.89
- fuelwood 1.4, 2.32, 2.36, 2.46, 3.21, 3.28, 3.95-3.97, 5.58, 5.63, 5.68
- geology 2.3, 2.29, 2.56, 2.73, 3.73, 3.108, 4.15, A1
- group size 1.15, 1.17, 2.16, 2.18, 2.19, 2.30, 2.33-35, 2.38, 2.44, 3.7, 3.11, 3.13, 3.19, 3.26, 3.43, 3.51, 3.59, 3.66, 3.71, 3.74, 3.79, 3.82, 3.87, 3.88, 3.91-94, 3.103, 5.73, 5.74, 5.78, 5.79, 5.88, 5.91
- guidelines 1.12, 1.13, 2.26-29, 2.40, 2.49, 2.50, 2.62, 3.2, 3.6, 3.7, 3.9, 3.12, 3.19, 3.25, 3.26, 3.37, 3.42, 3.44, 3.50, 3.52, 3.57, 3.58, 3.66, 3.71, 3.74, 3.78, 3.79, 3.82, 3.88, 3.93, 3.95, 3.102, 3.106, 4.4, 4.10, 5.65, 5.83, 5.84, 5.91, 5.94, A4, A5
- hanging gardens 2.7, 2.9, 2.30, 2.44, 3.30, 3.36-3.40, 3.64, 5.56, 5.63, 5.64, 5.75, 5.90, A1
- history 1.3, 2.2, 2.3, 2.5, 2.6, 2.30, 2.34, 2.56, 2.73, 4.1, 4.11, 4.15, 4.16, 5.70, A1
- impact analysis 3.4, 5.54, 5.55, 5.62, 5.66
- impacts on
  - adjacent agencies management 3.101
  - air quality 3.70-3.72, 5.69
  - archaeological and historic resources 3.10
  - biological soil crusts 3.17-3.20
  - forestry product use 3.96
  - livestock operations 3.93, 3.94
  - local economies 3.98, 5.77
  - outfitters and guides 3.91

  - paleontological resources 3.5, 3.78
  - recreational use 3.87, 3.91, 3.92
  - relict plant communities and hanging gardens 3.36
  - research activities 3.84
  - riparian resources 3.26, 3.40, 3.43, 3.52, 3.59, 3.60
  - scenic quality 3.73, 3.74, 3.76, 3.90
  - water quality 3.64, 3.67, 3.104
  - wild and scenic river values 3.78
  - wilderness values 3.80
  - wildlife 3.40, 3.48, 3.49, 3.51, 3.54, 5.66
- implementation 1.11, 1.15, 2.7, 2.14, 2.19, 2.25, 2.26, 2.34, 2.45, 2.49, 2.72, 2.73, 3.2, 3.3, 3.7, 3.12, 3.13, 3.19, 3.23, 3.25, 3.26, 3.32, 3.37, 3.38, 3.42-44, 3.50-3.52, 3.58, 3.59, 3.65, 3.66, 3.70, 3.74, 3.79, 3.80, 3.82, 3.88, 3.89, 3.98, 3.101, 3.107-109, 4.3, 4.12, 5.58, 5.65, 5.72, 5.75, 5.83, A3
- intergovernmental coordination 4.2
- internet homepage 4.2
- irreversible and irretrievable commitment of resources 3.107
- issues 1.2-1.4, 1.11, 1.12, 1.14, 1.18, 2.1, 2.20, 2.21, 2.25, 2.28, 2.30, 2.51, 2.72, 2.73, 3.9, 3.16, 3.22, 3.28, 3.29, 3.34, 3.39, 3.46, 3.54, 3.50, 3.62, 3.63, 3.68, 3.69, 3.73, 3.77, 3.79, 3.80, 3.84, 3.87, 3.90, 3.92, 3.95, 3.98, 3.103, 3.104, 3.108, 4.2, 4.4, 4.7, 4.8, 4.12, 5.59-61, 5.64, 5.65, 5.68, 5.70, 5.75-77, 5.81-84
- issues considered but not analyzed in detail 3.108, 3.109
- Jones' cycladenia 2.36, 2.37, 3.30-3.33, 3.35, 5.55, A7, A9
- Kanab ambersnail 2.35, 3.56, 3.58, A7, A8
- Kodachrome bladderpod 2.36, 2.37, 3.30-3.35, 5.55, A7, A9
- law enforcement (also see enforcement) 2.22, 2.32, 2.38, 3.31, 3.34, 3.56, 3.101, 4.7, 5.51, 5.82
- livestock grazing 1.2, 1.12, 2.2, 2.26-29, 2.32, 2.36, 2.41-45, 3.2, 3.6, 3.7, 3.6, 3.7, 3.12, 3.13, 3.12, 3.18, 3.19, 3.25, 3.31, 3.32, 3.31, 3.32, 3.37, 3.42, 3.50, 3.58, 3.64, 3.66, 3.71, 3.74, 3.78, 3.79, 3.78, 3.82, 3.85, 3.87, 3.88, 3.92-3.96, 3.98, 3.102, 3.103, 3.102, 3.105-3.107, 4.5, 4.7, 4.8, 4.10, 4.11, 5.1, 5.58, 5.81, 5.83-85, 5.96, 5.98, A1, A5, A6
- maintenance 1.4, 1.11, 1.21, 2.6, 2.8, 2.21-23, 2.32, 2.33, 2.38, 2.40, 2.41, 2.44, 2.50, 3.1, 3.3, 3.8-3.10, 3.15, 3.16, 3.21, 3.22, 3.26-3.28, 3.33, 3.34, 3.38, 3.39, 3.44-3.46, 3.52-3.54, 3.60-3.64, 3.68, 3.72, 3.74, 3.76, 3.83, 3.90, 3.101, 4.6, 4.7, 5.52-54,5.59-61, 5.64, 5.79, 5.85-87, A4
- management ignited fire 1.22, 2.7, 2.14, 2.45, 2.50, 2.51, 3.91, 5.62, A4
- management strategies and scenarios 4.1
- Mexican spotted owl 2.34, 2.35, 3.56, 3.59, 5.57,A7, A8
- minerals 2.26, 2.40, 2.43, 4.9, 4.13, 4.15, 5.1, 5.68, 5.81, A1
- mitigation 1.23, 2.6, 2.13, 2.14, 2.61, 3.1, 3.3, 4.9, 5.69, 5.71, 5.72, 5.74, A3, A4
- Monument management direction 2.1, 4.8, 5.58

National Environmental Policy Act (NEPA) ... 1.1, 1.3, 1.12, 1.13, 2.6, 2.16-18, 2.21, 2.23, 2.27, 2.29, 2.39, 2.43, 2.46, 2.50, 2.72, 3.1, 3.8, 3.9, 3.13-3.16, 3.18, 3.20-3.22, 3.24, 3.26, 3.28, 3.29, 3.33-3.35, 3.38, 3.39, 3.41, 3.44, 3.46, 3.49, 3.52, 3.54, 3.57, 3.60, 3.62, 3.63, 3.65, 3.67-3.69, 3.72, 3.75, 3.77, 3.81, 3.82, 3.93, 3.95, 3.103, 4.1, 4.6, 5.1, 5.53, 5.58, 5.60, 5.63, 5.68, 5.71, 5.72, 5.74, 5.84, 5.86, 5.87, 5.90, A4
Native American Indians ... 1.4, 2.2, 2.4, 2.5, 2.22, 2.25, 2.72, 3.108, A4
night skies ... 2.29
noxious weeds (also see weeds) ... 2.32, 2.33, 2.45, 2.46, 2.49, 3.17, 3.22, 3.29, 3.34, 3.39, 3.46, 3.54, 3.63, 3.69, 3.77, 3.91, 3.95, 3.108, 5.62, A4
oil and gas ... 2.37, 2.39, 2.43, 5.68, 5.71, 5.72, 5.76
open house sessions ... 1.11, 4.2
other existing authorizations ... 2.38, 3.2, 5.67, 5.81, 5.82, 5.93, A1
outback zone ... 2.15, 2.18, 2.20, 2.24, 2.46, 3.8, 3.14, 3.20, 3.27, 3.45, 3.52, 3.61, 3.68, 3.72, 3.75, 3.83, 3.88, 3.90, 3.92, 3.97, 5.89, 5.91
outfitters and guides ... 1.18, 2.5, 2.19, 3.91, 3.92, 5.58, 5.88, 5.89
overall resource objectives ... 2.32
pack stock use (also see recreational stock use) ... 3.7, 3.13, 3.19, 3.26, 3.32, 3.37, 3.43, 3.51, 3.59, 3.66, 3.82, 3.88, A4
paleontology ... 2.3, 2.56, 2.73, 3.78, 3.85, 3.108, 4.14, 4.15, 5.80, A1, A4
passage zone ... 1.15, 2.15, 2.17, 2.18, 2.21, 4.6, 5.54, 5.88, 5.89
peregrine falcon ... 2.33, 2.34, 3.56, 3.60, 5.57, A7, A8
planning consistency review ... 4.5-4.12
planning criteria ... 1.11, 1.12, 4.2, 5.81
planning process ... 1.2-1.4, 1.11-1.13, 1.15, 2.1, 2.12, 2.52, 2.62, 2.71, 2.72, 3.22, 3.28, 3.46, 3.76, 3.78, 4.1-3, 4.9, 5.53, 5.64, 5.67, 5.72, 5.73, 5.76, 5.81, 5.95, 5.97, 5.99
posts ... 3.7, 3.13, 3.96
preparers, list of ... 4.15, 4.16
prescribed fire (see management ignited fire)
Presidential Proclamation ... 1.1-1.4, 1.11-14, 2.1-7, 2.9, 2.12, 2.13, 2.25, 2.26, 2.29, 2.30, 2.38-41, 2.44, 2.51, 2.52, 2.56, 3.5, 3.11, 3.24, 3.31, 3.36, 3.48, 3.56, 3.78, 3.84, 3.85, 3.93, 3.102, 3.106, 4.5, 4.7-11, 5.58, 5.61, 5.63, 5.66-68, 5.70-73, 5.77, 5.79-81, 5.83-86, 5.91, 5.95, 5.97, A1
primitive zone ... 1.15, 2.15, 2.18-21, 2.24, 2.44, 3.73, 3.88, 3.92, 4.6, 5.80, 5.88, 5.89, 5.91, 5.94, 5.95
private land ... 2.24, 2.41, 2.61, 3.3, 3.22, 3.30, 3.47, 3.105, 3.106, 4.8, 4.15, 5.82, 5.86
Proclamation (see Presidential Proclamation)
protest procedures ... 1.15, 5.76
purpose and need ... 1.1
public participation and coordination ... 4.1-4.16
reasonably foreseeable actions ... 3.1, 3.3, 3.4
recreation allocations (also see allocations) ... 2.19, 5.90

recreational stock use 2.20
relict plant communities 2.7, 2.20, 2.44, 3.30, 3.36-3.40, 5.54, 5.56, 5.63, 5.90, A1
research 1.2-1.4, 1.11, 1.13, 1.16, 1.18-1.21, 2.2-8, 2.15, 2.19, 2.25, 2.29-32, 2.36, 2.44, 2.45, 2.49, 2.61, 2.73, 3.2, 3.3, 3.6, 3.12, 3.17, 3.18, 3.21, 3.25, 3.29, 3.31, 3.32, 3.36, 3.37, 3.36, 3.37, 3.40-3.42, 3.41, 3.42, 3.47, 3.49, 3.50, 3.48-3.51, 3.55, 3.57, 3.58, 3.56-3.58, 3.63, 3.65, 3.66, 3.65, 3.66, 3.73, 3.77, 3.80, 3.84-3.88, 3.92, 3.93, 3.96, 3.97, 3.96, 3.100, 3.102, 4.2, 4.8, 4.10, 4.11, 4.14, 5.3, 5.52, 5.63, 5.65, 5.71-75, 5.84, 5.89, 5.96, A3
reseeding after fires 2.7, 2.49, 3.39, 3.95, 5.62, A4
restoration methods 1.22, 2.7, 2.30, 2.44, 2.73, 3.4, 3.5, 3.9-3.11, 3.15-3.17, 3.21, 3.23, 3.28, 3.30, 3.34, 3.38, 3.40, 3.45, 3.47, 3.48, 3.53, 3.55, 3.64, 3.65, 3.68, 3.73, 3.76, 3.83, 3.86, 3.90, 3.95, 3.97, 4.10, 5.62, A4
revegetation 2.7, 2.46, 2.49, 2.50, 2.61, 3.22, 3.24, 3.27, 3.28, 3.40, 3.46, 3.73, 3.76, 3.95, 4.10, A4
riparian 2.7-9, 2.11, 2.15, 2.16, 2.28-30, 2.33, 2.36, 2.38, 2.41, 2.50, 3.10, 3.17, 3.22, 3.23, 3.26, 3.27, 3.24, 3.26-3.29, 3.33, 3.32-3.34, 3.38, 3.40, 3.44, 3.41-3.48, 3.52, 3.49, 3.50, 3.52, 3.54, 3.56, 3.60, 3.58-3.60, 3.62-3.64, 3.67, 3.66-3.69, 3.73, 3.75, 3.78, 3.79, 3.78-3.80, 3.84-3.86, 3.89, 3.90, 3.92, 3.95, 3.96, 3.98, 3.101, 3.103, 4.16, 5.51, 5.56, 5.57, 5.64, 5.65, 5.74, 5.86, 5.90, 5.96-98, A1, A4
road restoration 2.22
science and research 2.30, 2.31, 3.86, 5.52, 5.65, 5.74, A4
science symposium 4.1
scoping process 1.3, 2.20, 4.1, 5.60, 5.81
scoping workshops 4.1
SITLA 2.39, 2.42, 2.43
soils 1.3, 2.2, 2.3, 2.6, 2.16, 2.22, 2.29, 2.49, 3.17-3.19, 3.25, 3.42, 3.82, 3.86, 3.103, 4.6, 5.65, 5.80, A1, A4
southwestern willow flycatcher 2.35, 3.56-3.58, 3.61, 3.62, 3.79, 4.5, 5.57, A7, A8
special events 1.17, 2.16, 2.25, 5.89
special management designations 2.52
special recreation management areas 2.52, 2.55
special status animal species 2.8, 2.31, 3.32, 3.56-3.64, 5.57, 5.63, 5.65, 5.84, A7, A8
    bald eagle 2.33, 3.56, 3.61, 3.62, 5.57, A7, A8
    California condor 2.35, 3.56, A7, A8
    endangered fish 2.12, 2.33, 3.63, A7, A8
    Kanab ambersnail 2.35, 3.56, 3.58, A7, A8
    Mexican spotted owl 2.34, 2.35, 3.56, 3.59, 5.57, A7, A8
    peregrine falcon 2.33, 2.34, 3.56, 3.60, 5.57, A7, A8
    southwestern willow flycatcher 2.35, 3.56-3.58, 3.61, 3.62, 3.79, 4.5, 5.57, A7, A8
special status plant species 2.7, 2.20, 2.36, 3.30, 3.32, 3.35, 5.55, 5.63, 5.65, 5.84, 5.89, 5.90

  Jones' cycladenia 2.36, 2.37, 3.30-3.33, 3.35, 5.55, A7, A9
  Kodachrome bladderpod 2.36, 2.37, 3.30-3.35, 5.55, A7, A9
  Ute ladies'-tresses 2.36, 2.38, 3.30, 3.32-3.35, 3.79, 5.55, A7, A9
spotted owl (see Mexican spotted owl)
stock use (also see pack stock use) 2.20, 3.7, 3.13, 3.19, 3.26, 3.32, 3.37, 3.43, 3.51, 3.59, 3.66, 3.82, 3.88
T&E animal species (see special status animal species)
T&E plant species (see special status plant species)
trails 1.4, 2.4, 2.5, 2.14, 2.17-19, 2.21, 2.30, 2.33, 2.34, 2.38, 2.56, 3.2, 3.7, 3.10, 3.13, 3.19, 3.25, 3.32, 3.37, 3.38, 3.42, 3.43, 3.50, 3.59, 3.66, 3.71, 3.74, 3.78, 3.79, 3.88, 3.89, 3.93, 3.108, 4.15, 5.2, 5.4, 5.51, 5.53, 5.54, 5.60, 5.78, 5.79, 5.90, 5.91, A4
transportation 1.2, 1.4, 1.14, 1.21, 2.3, 2.19-21, 2.25, 2.37, 3.5, 3.8, 3.9, 3.8, 3.11, 3.14, 3.15, 3.14, 3.20, 3.21, 3.20, 3.27, 3.28, 3.27, 3.33, 3.34, 3.33, 3.38, 3.44, 3.45, 3.44, 3.52, 3.53, 3.52, 3.60-3.62, 3.60, 3.67, 3.68, 3.67, 3.72, 3.75, 3.76, 3.75, 3.79, 3.82, 3.83, 3.82, 3.86, 3.89, 3.90, 3.89, 3.91, 3.92, 3.94, 3.95, 3.94, 3.97, 3.103, 4.5-7, 4.10,4.11, 5.1, 5.4, 5.51-55, 5.58, 5.60, 5.61, 5.76, 5.79, 5.82, 5.89, 5.90
update letters 4.2, 5.81
Ute ladies'-tresses 2.36, 2.38, 3.30, 3.32-3.35, 3.79, 5.55, A7, A9
utility rights-of-wey 1.22, 2.2, 2.23, 2.24, 2.30, 2.37, 2.44, 3.4, 3.6, 3.11, 3.12, 3.11, 3.12, 3.18, 3.24, 3.31, 3.36, 3.41, 3.49, 3.57, 3.65, 3.70, 3.71, 3.70, 3.74, 3.78, 3.81, 3.87, 3.91, 3.92, 3.96, 3.98, 3.102, 3.103, 3.106, 4.7, 4.9, 4.11, 5.87, 5.92, A4
valid existing rights (VER) 1.2, 1.4, 1.12-1.14, 2.2, 2.10, 2.13, 2.20, 2.24, 2.38, 2.39, 2.61, 2.62, 3.2, 3.4, 3.109, 4.6-9, 5.10, 5.53, 5.58, 5.60, 5.67, 5.71, 5.81, 5.82, 5.86, 5.93, 5.97
vegetation 1.2, 1.22, 2.2, 2.6, 2.7, 2.15, 2.20, 2.22, 2.25, 2.29, 2.30, 2.32-34, 2.36-38, 2.44-46, 2.49-51, 2.56, 2.73, 3.2, 3.4, 3.5, 3.9, 3.5-3.7, 3.9-3.11, 3.15, 3.11, 3.13, 3.15-3.17, 3.21, 3.22, 3.17-3.24, 3.28, 3.24-3.30, 3.34, 3.31-3.36, 3.38, 3.37-3.40, 3.45, 3.46, 3.41-3.48, 3.53, 3.54, 3.50, 3.52-3.55, 3.62, 3.58, 3.59, 3.61-3.65, 3.68, 3.65, 3.68, 3.69, 3.73, 3.70-3.73, 3.76, 3.74-3.78, 3.80, 3.83, 3.81-3.84, 3.86, 3.90, 3.88-3.90, 3.92, 3.93, 3.95, 3.94, 3.95, 3.97, 3.96-3.98, 3.101, 3.102, 3.104, 3.107, 4.7, 4.10, 5.62, 5.63, 5.65, 5.73, 5.74, 5.82, 5.83, 5.89, 5.90, A1, A4
vending 2.24, 2.25
visions kit 1.3, 4.1
visual resource management (VRM) 1.22, 2.17, 2.24, 2.25, 2.56, 2.61, 3.10, 3.17, 3.23, 3.30, 3.35, 3.40, 3.47, 3.55, 3.64, 3.69, 3.73, 3.74, 3.76, 3.79, 3.80, 3.83, 3.87, 3.90, 3.92, 3.96, 3.97, 3.103, 4.15, 5.69, A4
water 1.1-1.4, 1.12, 1.14, 1.23, 2.2, 2.3, 2.6, 2.8-13, 2.16-18, 2.20, 2.22-24, 2.26-28, 2.32, 2.33, 2.35, 2.36, 2.38, 2.41-44, 2.50, 2.52, 3.4, 3.5, 3.9, 3.10, 3.16, 3.17, 3.22, 3.23, 3.28, 3.29, 3.25, 3.27-3.29, 3.34, 3.33, 3.34, 3.39, 3.37, 3.39, 3.40, 3.46, 3.41-3.48, 3.54, 3.50, 3.52, 3.54, 3.62, 3.63, 3.58-3.65, 3.68, 3.69, 3.65-3.69, 3.73, 3.77-3.80,

3.79, 3.80, 3.84, 3.86, 3.87, 3.90, 3.88-3.93, 3.95, 3.98, 3.103, 3.104, 3.102-3.107, 4.2, 4.4, 4.6-14, 5.1-3, 5.52, 5.57, 5.59, 5.64, 5.65, 5.85-87, 5.89, 5.91-95, 5.97, 5.98, A1
  availability 1.4, 2.9-12, 2.33, 2.38, 3.34, 3.62, 5.64, 5.92
  developments 1.2, 1.23, 2.6, 2.8, 2.11, 2.44, 2.50, 3.4, 3.5, 3.9, 3.10, 3.16, 3.17, 3.22, 3.23, 3.28, 3.34, 3.39, 3.40, 3.46, 3.48, 3.50, 3.54, 3.62-3.64, 3.68, 3.69, 3.77, 3.79, 3.80, 3.90, 3.93, 3.95, 3.106, 5.65, 5.85, 5.92
  quality 1.2-1.4, 1.23, 2.13, 2.20, 2.27, 2.28, 2.33, 3.17, 3.23, 3.27, 3.29, 3.33, 3.40, 3.41, 3.44, 3.46, 3.50, 3.52, 3.54, 3.58-3.61, 3.64-3.69, 3.86, 3.90, 3.102-3.106, 4.13, 5.57, 5.64, 5.93, 5.94
  rights 2.9-13, 2.42, 2.43, 3.106, 4.7-9, 4.13, 5.85, 5.91-94
weeds 2.32, 2.33, 2.45, 2.46, 2.49, 3.17, 3.19, 3.22, 3.23, 3.25, 3.29, 3.31, 3.32, 3.34, 3.37-3.39, 3.42, 3.46, 3.54, 3.63, 3.69, 3.77, 3.91, 3.95, 3.108, 5.62. A4
wild and scenic rivers 2.12, 2.61, 3.10, 3.17, 3.23, 3.30, 3.35, 3.40, 3.47, 3.54, 3.63. 3.69, 3.73, 3.77, 3.80, 3.84, 3.87, 3.91, 3.92, 3.96, 3.98, 3.104, 5.1, 5.57, 5.96-98, A11
wilderness inventory 1.12, 2.62, 2.71, 4.9, 5.67
Wilderness Study Areas (WSA) 1.2, 1.12, 2.15, 2.51, 2.61, 2.71, 2.72, 3.9, 3.80, 3.81, 3.83, 4.9, 5.1-50, 5.64, 5.67, 5.69, 5.84, 5.91, 5.94, 5.95
wildfire management .... 2.50, 3.0, 3.16, 3.22, 3.0, 3.29, 3.30, 3.35, 3.39, 3.0, 3.47, 3.55, 3.64, [illegible]69, 3.0, 3.80, 3.83, 3.84, 3.86, 3.0, 3.91, 3.92, 3.95, 3.96, 3.0, 5.64, 5.65
wildlife (see fish and wildlife)
Wildlife Services 1.24, 2.33, 2.51, 3.10, 3.17, 3.23, 3.30, 3.35, 3.40, 3.47, 3.55, 3.64, 3.69, 3.73, 3.77, 3.80, 3.84, 3.87, 3.91, 3.92, 3.0, 3.98, 3.104, 4.4, 5.3, 5.66, 5.69
withdrawal review 2.51
zone management 2.14, 3.88, 5.95

Errata for the DEIS

BEST COPY AVAILABLE

CHAPTER 2

- Alternative A reads: "Animal damage control activities within the Monument would be limited to the taking of individual animals responsible for verified livestock kills." Alternative A should read: "The BLM would urge Animal and Plant Inspection Service, through amendments to existing agreements and other measures, to target individual predators rather than predator populations."

- Alternative B: Corrected route mileage:

Administrative routes:	310 miles
Public (no ATVs):	227 miles
Public ATVs allowed:	591 miles
Total:	1,128 miles

- Wild and Scenic River DEIS Maps 2.2 and 2.7 are incorrect. Replace with new DEIS Maps 2.2 and 2.7 found on the following pages.

CHAPTER 3

- Information received from Conoco Inc. during the comment period revealed an error in the Draft on page 3.56 under the heading Oil and Gas. The Reese Canyon State 32 well, drilled in 1997, encountered hydrocarbons and methane rather than trace amounts of CO_2 as indicated in the Draft Management Plan/Draft Environmental Impact Statement. The Cambrian Tapeats Sandstone tested 54.4 percent hydrocarbons (C1 through C6), 45 percent nitrogen and only 0.5 percent CO_2. The Cambrian Muav Limestone tested 99 percent methane and 1 percent CO_2.

CHAPTER 4

- The Summary of the Environmental Consequences Table - Alterative D, pages S.24 and 4.70, is incorrect. The text in Chapter 4, page 4.40, is correct. Change table (under Alterative D) to read "Visitor experience would not be impacted by animal damage control activities, because they would not be allowed." instead of "Animal damage control activities would directly and indirectly impact visitor experiences."

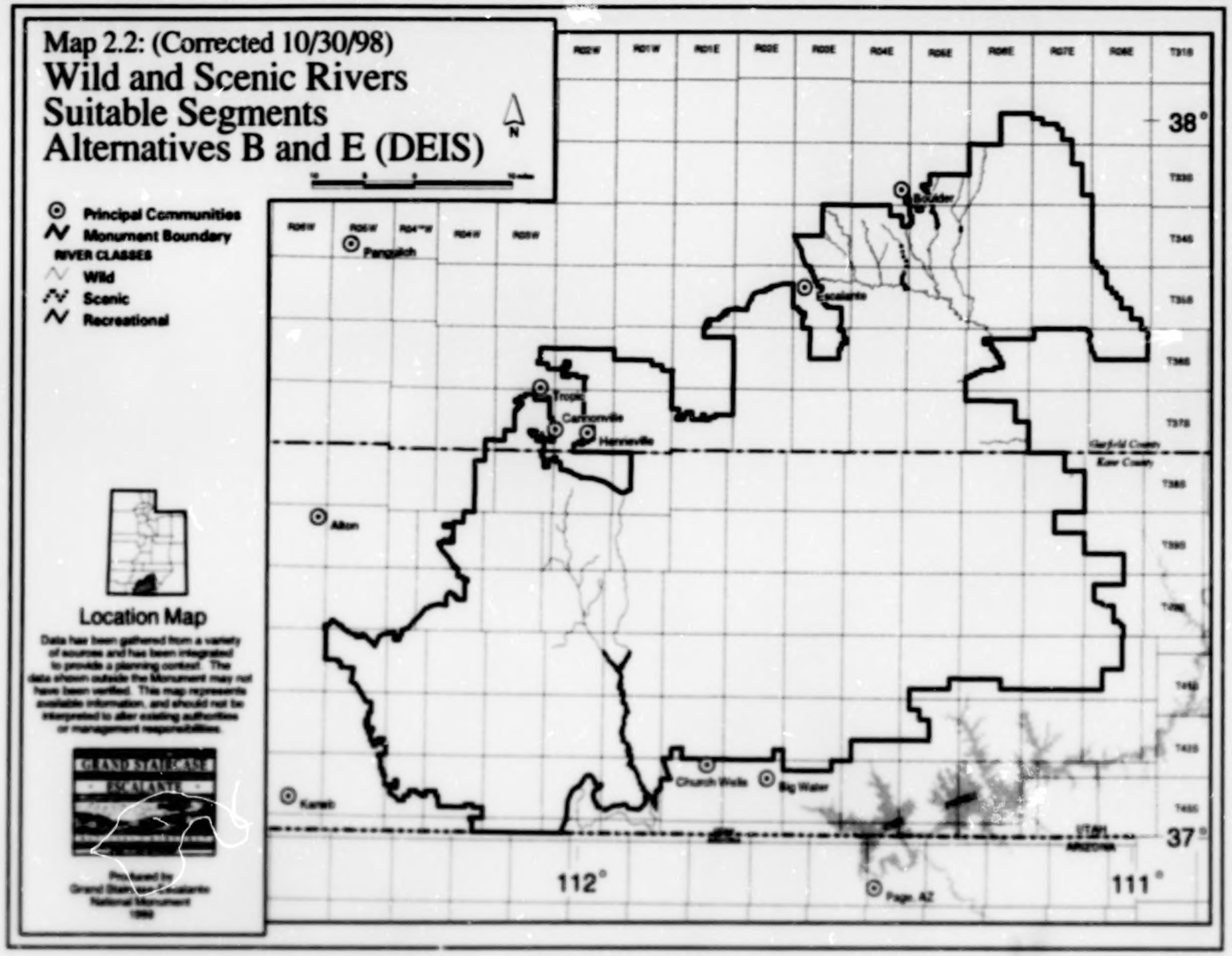
- During the comment period it was brought to the BLM's attention that there was a math error in the economic analysis under Alternative C on pages S.27, 4.47, and 4.73. The following is a correction to the Draft: "Local government revenues attributable to this alternative would be $288,000 in 2012, with expenditures of $245,000, for a net revenue of $236,000 to local governments..." The net revenue figure was brought forward from Alternative B. The reference table in Appendix 19 (A19.2) notes that the net revenue is $43,000, which is also the correct calculation if $245,000 is subtracted from $288,000. The $236,000 figure has been replaced with $43,000.

APPENDICES

- The scientific names used for Brewer's blackbird and for the mallard in Appendix 15 of the DEIS are in error and are corrected as follows: Brewer's blackbird should be *Euphagus cyanocephalus*. Mallard should be *Anas platyrhynchos*.

- Appendix 4 (page A4.11) in the DEIS incorrectly identified the Bonneville cutthroat trout as being present in the West Fork of Boulder Creek. It should have read the Colorado cutthroat trout.

- A word is missing on page A6.1 in the Areas of Critical Environmental Concern discussion. The missing words, "these resources," has been added to the text in Appendix 10 of this document.



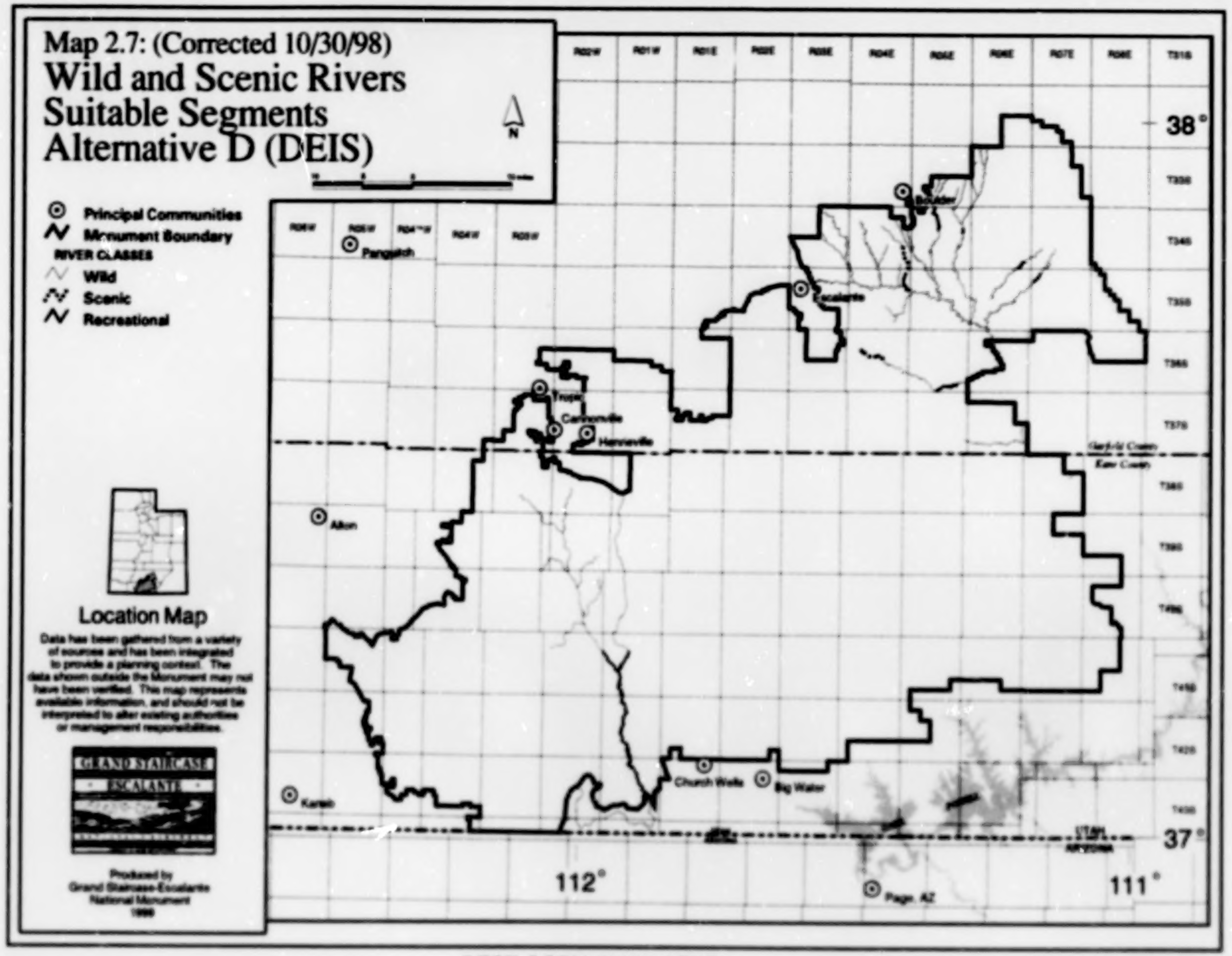
Map 2.2: (Corrected 10/30/98)
Wild and Scenic Rivers Suitable Segments Alternatives B and E (DEIS)

Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

Produced by
Grand Staircase-Escalante
National Monument
1998

BEST COPY AVAILABLE

436



United States Department of The Interior
Bureau of Land Management
Grand Staircase-Escalante National Monument
337 South Main, Suite 010
Cedar City, Utah 84720

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

PRIORITY RATE
POSTAGE & FEES PAID
Bureau of Land Management
Permit No. G-76

US Government Printing Office
Depository Receiving Section
Jackson Alley, Rmk A-150
Washington DC 20401

BEST COPY AVAILABLE

END

DATE FILMED

7 / 7 / 04

IMAGE
Group-
IMAGING
Rochester, NY 14609 USA
Voice (716) 482-0300
Fax (716) 288-5989
APPLIED IMAGE, Inc., All Rights Reserved Rev. 1.00

Management Zones and Transportation System

Map 2.1

Management Zones and Transportation System

Map 2.1

- ⊙ Principal Communities
- Monument Boundary
- Highways 89 & 12
- Administrative Roads
- Open Roads
- Open/ATV Roads
- Other Roads

/\/ Open/ATV Roads

/\/ Other Roads

■ Frontcountry Zone

The Frontcountry Zone (78,056 acres) is intended to be the focal point for visitation by providing day- use opportunities close to adjacent communities and to Highways 12 and 89. This Zone would accommodate the primary interpretation, overlooks, trails, and associated facilities necessary to feature Monument resources.

▨ Passage Zone

The Passage Zone (38,316 acres) includes secondary travel routes which receive use as throughways and recreation destinations. Rudimentary facilities necessary to protect resources, educate visitors about Monument resources, or for public safety would be provided.

□ Outback Zone

The Outback Zone (537,662 acres) is intended to provide an undeveloped, primitive and self- directed visitor experience while accommodating motorized and mechanized access on designated routes. Facilities would be rare and provided only where essential for resource protection.

▨ Primitive Zone

The Primitive Zone (1,211,386 acres) provides an undeveloped, primitive and self- directed visitor experience without motorized or mechanized access. Some administrative routes are included in the Zone, which could

would be rare and provided only where essential for resource protection.

▨ **Primitive Zone**

The Primitive Zone (1,211,386 acres) provides an undeveloped, primitive and self- directed visitor experience without motorized or mechanized access. Some administrative routes are included in the Zone, which could allow very limited motorized access to authorized users. Facilities would be virtually nonexistent.

Location Map

Data has been gathered from a variety
of sources and has been integrated
to provide a planning context. The
data shown outside the Monument may not
have been verified. This map represents
available information, and should not be
interpreted to alter existing authorities
or management responsibilities.

GRAND STAIRCASE

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Location Map

Data has been gathered from a variety of sources and has been integrated to provide a planning context. The data shown outside the Monument may not have been verified. This map represents available information, and should not be interpreted to alter existing authorities or management responsibilities.

GRAND STAIRCASE
ESCALANTE

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Produced by
Grand Staircase-Escalante
National Monument
1999

BEST COPY AVAILABLE